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The Bristol Medico-Chirurgical Journal

"Scire est nescire, nisi id me
Scire alius sciret."

SUMMER, 1930.

ACUTE INTESTINAL OBSTRUCTION.*

BY

D. P. D. WILKIE, O.B.E., M.D., CH.M., F.R.C.S., F.R.S.E.,

Professor of Surgery, University of Edinburgh.

THERE are no cases in medical practice so dramatic and so urgent in their appeal for relief as those of intestinal obstruction. Opinions may differ as to the correct line of treatment to be followed in many diseases, but for a mechanical obstruction of the bowel there can be only one treatment, namely surgical intervention. Timely operation should save most sufferers from intestinal obstruction, yet the death-rate from this condition is still well-nigh 40 per cent., and many of the victims represent robust and valuable lives. In many of the fatal cases no blame can attach to the practitioner or surgeon who dealt with them, but solely to the fact that medical help was sought too late. In a few a wrong diagnosis may have led to fatal delay, as when a strangulated femoral hernia has been missed or an internal strangulation has been treated as simple colic. In a number an apparently successful operation

* An address given to the Bristol Medico-Chirurgical Society, February 12th, 1930.

has been done for the relief of the obstruction, but death, possibly from toxæmia, has occurred some days after operation. Whilst recognizing, therefore, that early diagnosis and prompt surgical treatment will always form the best safeguards for the patient, we may with advantage study the factors which make for a fatal issue in such cases, that our treatment may be directed to combat these and be based on sound scientific data.

A great amount of experimental work has been done in regard to the cause of death in intestinal obstruction. The subject is a very difficult and complicated one, because of the many factors which come into play in varying degrees in individual cases. The functions of different parts of the intestinal tract are so diverse, the inter-relation of function of one part to another so imperfectly understood, the presence or absence of tension and interference with blood supply so important, that before inferences can be drawn from any experimental findings a very critical examination of the bearing of all such factors must be made. We now realize that peritonitis, once thought to be the ultimate cause of death in obstruction, is only of importance in cases where devitalization of a portion of gut from vascular occlusion or from tension of confined content is operative. The toxic character of the intestinal content above an obstruction has been determined most often by the intravenous injection of filtrates, a standard by which normal intestinal content is hardly less toxic.

Whilst emphasizing the need for care in interpreting experimental results, we must acknowledge the debt which surgery owes to the research worker in this field. Experiment has borne out completely our clinical experience that high obstruction is much more rapidly fatal than is low, and has allowed of a controlled study

of the blood chemistry. The work of recent years has tended ever more fully to establish that a profound interference with intestinal physiology is the most important factor in simple obstruction and overshadows the pathological changes, whilst in strangulation and in fæcal—containing closed-loop obstruction the pathological changes in the gut determine the fatal issue.

Among the great variety of pathological conditions responsible for intestinal obstruction we may distinguish certain fundamental types. These are :—

1. Simple obstruction of the intestinal lumen.
2. Closed loop obstruction.
3. Interference with the vascular supply of the intestine.
4. Strangulation.

A fifth type, the so-called adynamic ileus of peritonitis, will also be discussed. In a number of cases these types may be combined, nevertheless they must be analysed separately.

Simple Obstruction.—By this we mean that the continuity of the lumen of the bowel is obstructed, either by a foreign body, *e.g.* a gall-stone, by the final occlusion of an organic stricture—tuberculous or malignant—by a kink or pressure from a band or adhesion, or occasionally by pressure from a tumour from without. The urgency of the condition varies inversely with the distance from the upper end of the intestinal tract. Thus occlusion of the distal end of the duodenum may prove fatal in sixty hours, whilst occlusion of the distal colon may be survived for two weeks. The essential difference between the high and the low obstruction would appear to be the loss of all the digestive secretions by vomiting which attends the former, and which is but a late event in the latter.

Whenever we plant an obstruction between the

upper secretory part of the intestinal canal and the lower absorptive reaches, we deal a shrewd blow to the whole physiological mechanism of the digestive tract, with immediate and dramatic results. (Fig. 1.) Whilst

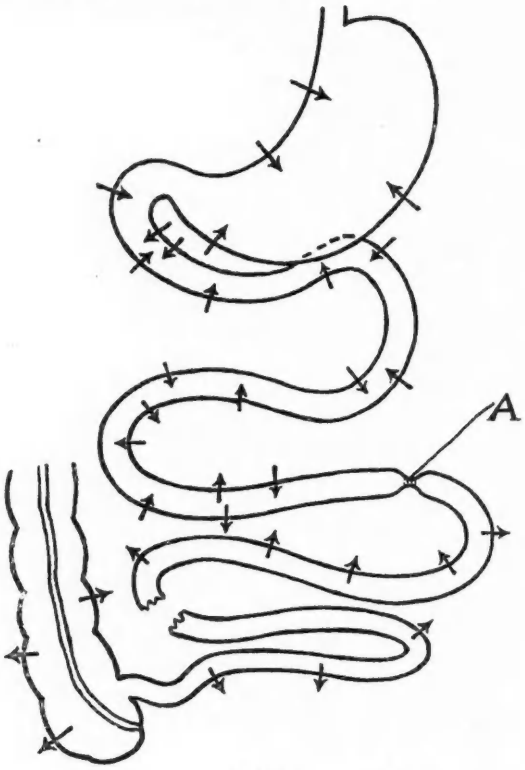

FIG. 1.
Arrows represent secretion into and absorption from gut.
Obstruction at A entails loss of secretion.

it is possibly true that toxic materials of the nature of proteoses may form in and may be absorbed from the bowel above the obstruction, it is equally true that the content of the obstructed bowel produces no toxic symptoms when introduced into the intestine below.

Whilst, therefore, at operations for simple obstruction it may, on mechanical grounds, seem expedient to evacuate the dilated and distended coils above the obstruction, we are losing content which might be of real value in the empty coils below. In such cases, apart from the actual mechanical relief which operation alone can give (if we except acute duodenal ileus where posture may relieve the obstruction), we must endeavour to make good the loss due to continued vomiting of secretions.

Dehydration is undoubtedly a very important factor. Hartwell showed that dogs lose as much as 5 per cent. of their body weight daily from vomiting when suffering from a high intestinal obstruction. Further, there is invariably a rise in the non-protein nitrogen of the blood in obstruction, sometimes amounting to six or seven times the normal. This rise may be accentuated during the first twenty-four hours following relief of the obstruction. Abundant fluid is an obvious need, and generous and repeated subcutaneous infusions must be given.

Some years ago Haden and Orr drew attention to the pronounced loss of blood chlorides in cases of high obstruction, the vomited gastric secretions apparently accounting for the loss. Replacement of chloride loss is thus another need, and a further reason for saline infusions. As Hartmann and Elman have pointed out, however, the loss of pancreatic and intestinal secretions introduces another element which cannot be ignored. From a study of the blood chemistry they conclude that a " combined solution " containing the chlorides of sodium, potassium and calcium, and sodium lactate, is necessary to restore normal conditions.

An important addition to our post-operative therapeutic agents is the use of hypertonic saline

given intravenously. Injected very slowly, 20 c.c. of 15 per cent. sodium chloride is given into the median basilic vein. The rationale of this treatment is as follows : A rapid replacement of chloride loss is effected. Further, as Hughson and Scarff have shown, intestinal absorption is lessened, whilst at the same time vigorous peristalsis is induced. These observers demonstrated that hypertonic saline was more effective in instigating peristalsis than was pituitrin, and was thus of value, not only in promoting the downward passage of content after relief of mechanical obstruction, but also in cases of adynamic ileus and post-operative gaseous distension. An effort to replace the loss of the biliary and pancreatic secretions by giving the vomited material as an enema is rational and probably useful, and the work of Brockman on the value of enemata of bile in paralytic ileus is interesting in this connection.

The part played by bacteria in elaborating in the distended bowel above the obstruction a toxic substance which is absorbed and causes systemic poisoning is not yet fully determined. That *B. Welchii* is found in great numbers in the obstructed jejunum is undoubted, and the injection of *B. Welchii* antiserum, as recommended by Williams, to combat toxæmia may well be used as an adjuvant to the physico-chemical measures already mentioned. Clinically I have seen no impressive results from its use.

It is true that in some cases a wide exposure at operation may be necessary to find and relieve the obstruction, and a partial evisceration may even be required. On the other hand, the least exposure of viscera consistent with displaying the obstruction should be practised, and this may usually be done by finding the collapsed bowel below, and tracing it up whilst the distended coils are confined within the

abdomen. In late cases of both high and low obstruction, where greatly distended and engorged jejunal coils are encountered, not only should they be emptied at operation, but a valvular tube-jejunostomy should be left, so that free drainage and lavage may be instituted and nourishment introduced.

It is almost unnecessary to state that where an organic stricture is found to be the cause of the obstruction, it should be left for late resection, and drainage of the bowel above should constitute the only immediate procedure—an ileostomy for tubercle of the small, a cæcostomy for carcinoma of the large intestine.

Closed Loop Obstruction.—The confinement of intestinal content within a closed loop is ever a source of grave danger. This type of obstruction forms a factor in all cases of strangulated hernia, and in internal strangulations, but is seen in its purest form when the vermiform appendix has its lumen obstructed by the impaction of a concretion in a stenosed area, or at a kink due to a peritoneal fold or an adhesion. The profession has been slow to recognize this form of obstruction, and to distinguish it from simple inflammation of the appendix, with which it is so commonly classed. Until this distinction is clearly drawn by those who teach pathology and surgery, we cannot hope to lower the death-rate from appendicitis so-called.

That the confinement of fæcal matter within a closed loop of intestine or an appendix with its proximal end occluded will lead inevitably to putrefaction, tension and gangrene is not yet generally understood and realized as a fundamental fact in pathology. The experiments with closed loops of duodenum and upper jejunum have little bearing on the type which I wish to emphasize. It is the presence of bacteria-laden organic matter undergoing putrefaction which places

appendicular obstruction in a class by itself. A closed loop of small intestine as a rule contains little organic matter to decompose. Fill it, however, with cæcal content, and it will be gangrenous within twenty-four hours. (Fig. 2.) Acute obstruction of the appendix, with its typical clinical picture of colicky pain and vomiting, whilst the pulse-rate and temperature remain normal, is overlooked more frequently than any other acute abdominal disease, and is yet the commonest form of intestinal obstruction. (Fig. 3.) The difference between removing such an obstructed appendix before the tense, gangrenous wall has given way and after perforation has occurred, with the voiding of its stinking fæculent content into the peritoneal cavity, is the difference between safety and imminent danger to life. Acute inflammation of the appendix is a relatively harmless disease, acute obstruction of the appendix is one of the most fatal of diseases if not promptly dealt with.

Interference with Blood Supply.—Embolism or thrombosis of a mesenteric vessel gives rise to a potential obstruction in the segment of the gut involved. (Fig. 4.) The essential factors of danger in this case, however, are the lowered resistance of the intestinal wall, permitting of the passage of bacteria with consequent peritoneal infection, and the absorption of autolytic products from the damaged devitalized tissues. The presence of recognized heart disease may facilitate the diagnosis, and a rapid resection of the devitalized intestine offers the only chance of recovery.

Strangulation.—In this, the most dangerous of all forms of obstruction, several factors are at work, each of which in itself might prove fatal. The vascular supply of a segment of gut is interfered with, a closed loop of intestine is formed, and the intestinal passage

PLATE I.

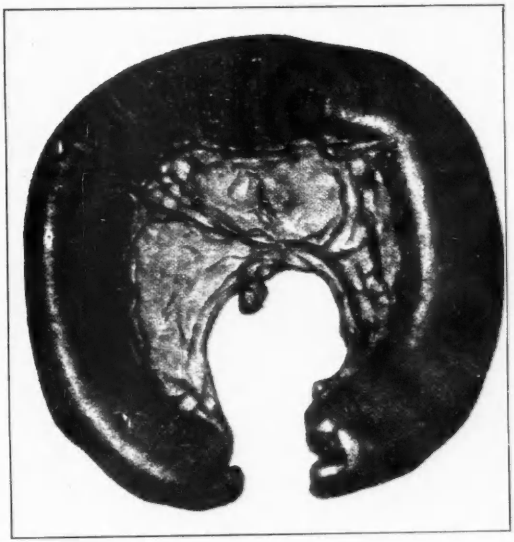

FIG. 2.
Closed loop of ileum filled with fæcal matter in cat. Tension gangrene of loop within 24 hours.

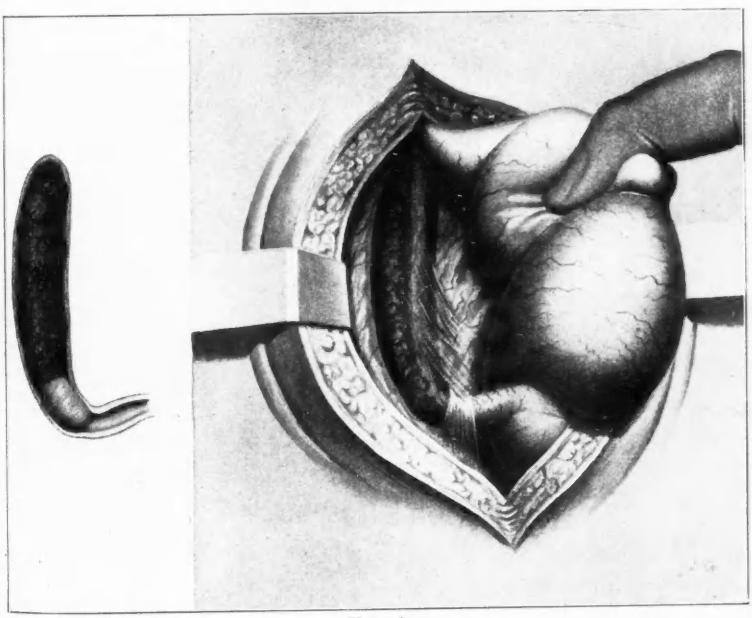

FIG. 3.
Acute appendicular obstruction. Gangrenous retrocæcal appendix exposed. Inset, appendix opened showing obstructing concretion.

PLATE II.

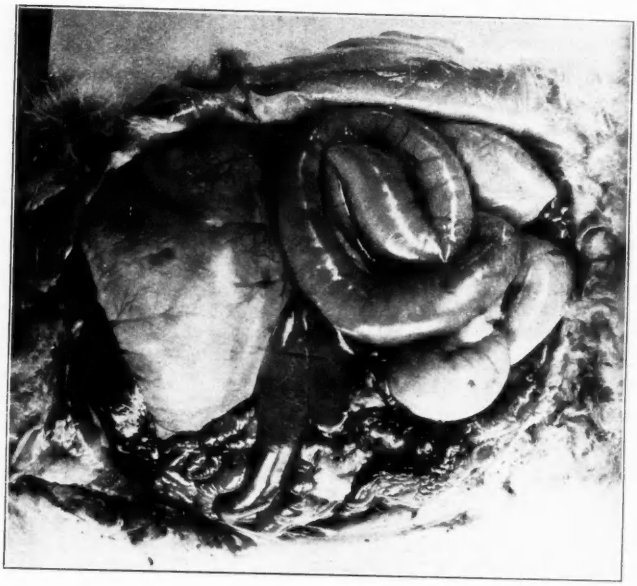

FIG. 7.
Fatal obstruction in rabbit due to recent (48 hours) plastic adhesion.
Note distended jejunum and collapsed coils of ileum.

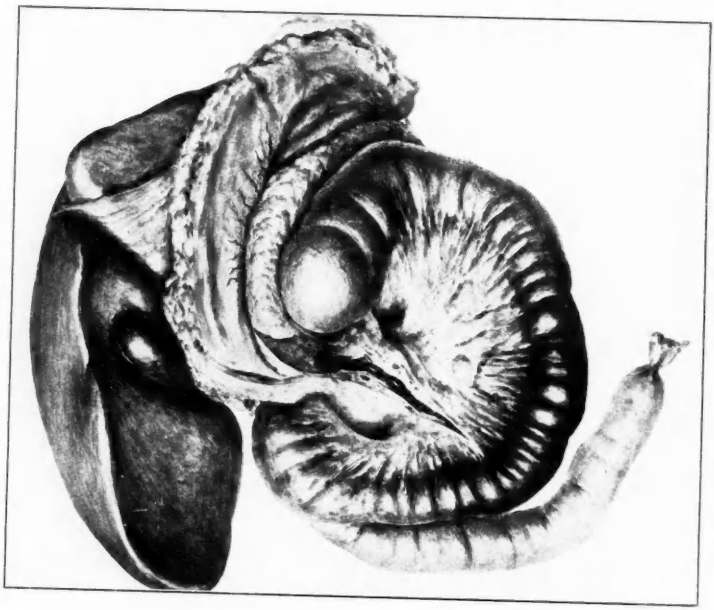

FIG. 4.
Thrombosis of branch of superior mesenteric artery causing
partial obstruction.

is occluded. A fourth and most important factor is also present, namely the twist or compression of the mesentery with resultant shock which may dominate the clinical picture. (Fig. 5.) The patient indeed may be moribund whilst peritoneal infection is still negligible and absorption of toxins and autolytic products but slight. The call for immediate operation is thus more clamant in this than in any other form of obstruction, and frequently a resection will be required. The advantages of spinal anæsthesia in such cases should be remembered, and the need for fluid and chlorides is no less than in simple obstruction, as persistent and copious vomiting is a feature of all strangulations.

Paralytic Ileus.—It is now beyond doubt that many patients suffering from acute peritonitis die, not so much from the peritoneal infection *per se*, as from the effects of super imposed intestinal obstruction. It has been customary to designate such obstruction paralytic or adynamic, and to postulate that paresis of the intestinal wall, consequent on the peritoneal infection and toxæmia, is the underlying cause. The post-mortem study of many such cases convinced me that in the majority a mechanical obstruction was present and, indeed, that at the time of death no microscopic evidence of active infection in the peritoneum could be demonstrated, in other words, that the patients recovering from peritonitis had died from obstruction. (Fig. 6.) It was not difficult to demonstrate experimentally that quite recent fibrinous adhesions may, in the presence of a minimal infection, give rise to fatal obstruction.

The abdomen of a rabbit was opened, a coil of small intestine was gently rubbed with gauze and an emulsion containing one-fiftieth of a lethal dose of staphylococcus was applied to the coil. Two days later the animal died from acute intestinal obstruction. A recent plastic

FIG. 4.
Thrombosis of branch of superior mesenteric artery causing potential obstruction.

FIG. 7.
Fatal obstruction in rabbit due to recent (48 hours) plastic adhesion. Note distended jejunum and collapsed coils of ileum.

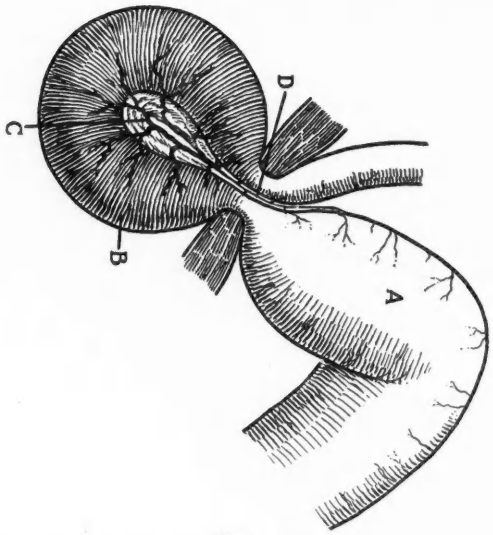

FIG. 5.

Strangulation of bowel. A—Distended bowel above obstruction. B—Closed loop. C—Interruption of circulation. D—Compression of mesentery.

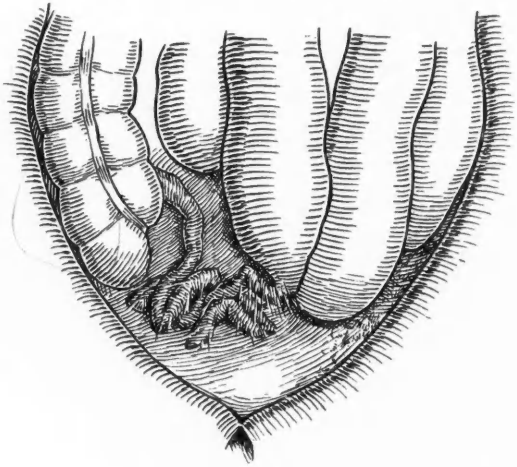

FIG. 6.

Plastic adhesions in pelvis causing obstruction eight days after operation for acute appendicitis.

adhesion had determined the obstruction. (Fig. 7.) Cultures from the peritoneum proved sterile. Repeated on several occasions, this experiment gave similar results. When, after rubbing with gauze and infecting the surface of the loop, sterile liquid paraffin was applied fatal obstruction did not occur.

Two methods of dealing with such obstructions suggested themselves. The one was to explore the abdomen, breaking down recent adhesions and endeavouring to prevent their reformation by smearing the surface with an oily substance. Sterilized liquid paraffin was the substance recommended. The other method was to perform a temporary enterostomy to relieve the distension of the obstructed gut, and give it a chance to recover tone whilst the natural resolution of the plastic adhesions occurred. Both methods proved successful in practice, but the latter was the much more generally applicable, and therefore to be preferred.

In 1914 Sampson Handley published his paper on "Ileus Duplex," in which he again emphasized the true obstructive nature of many of these cases, but added the factor of colon obstruction due to the œdema and local paresis of the pelvic portion of the colon in the inflamed zone of peritoneum. The treatment recommended by him, namely jejuno-colostomy and cæcostomy, has undoubtedly saved many lives, but is more complicated than the simple enterostomy and, in my opinion, no more successful. Much has been written in support of the value of enterostomy in post-peritonitic obstruction, and where peritonitis had been diffuse and lower abdominal in type and not generalized, it is unquestionably a valuable life-saving measure.

A group of cases is left, however, where the peritoneal infection has been generalized, where a true paresis is present, where clinically the absence of all colicky pain raises little suspicion of any organic

obstruction, and where enterostomy, except as an inlet for lavage and for nourishment, gives little benefit. In such cases fomentations, subcutaneous saline, morphia, and possibly bile enemata, indeed the old treatment of peritonitis, offer as much hope as any surgical measure. Clinically the important point is to distinguish the true mechanically obstructed cases, usually associated with pelvic peritonitis, and accompanied by colicky pains, from the true adynamic type. In all of the former, and in doubtful cases, the patient should be given the benefit of a jejunostomy.

Diagnosis.—Whilst it is impossible to discuss this question fully, there are certain points which experience has taught me require emphasis. The all-important question, in the presence of a case of acute abdominal colic with vomiting, arises: Is there an organic obstruction of the intestine requiring immediate operation, or is the trouble one which brooks delay? The presence of shock, if renal colic be excluded, will leave little doubt that some form of strangulation has occurred and operation is urgently called for. If the patient is the subject of valvular heart disease, an embolism may be suspected. Acute pancreatitis may simulate a strangulation, but requires equally prompt surgical intervention. The type of patient, a history of biliary trouble, slight lividity of the skin, and epigastric tenderness and fulness will suggest pancreatitis. It may seem impertinent to remind you to examine carefully for hernia in all cases, and especially femoral hernia, but few of us are blameless in this matter. If a small femoral swelling be present, no matter how painless and insignificant in size, it is almost certainly the cause of the symptoms, and should be dealt with. It should be remembered that abdominal distension is usually absent during the early stages of all cases of high intestinal obstruction, and that behind a muscular

abdominal wall several distended jejunal coils may be readily concealed. The presence of intestinal splashing on dipping palpation is pathognomonic of obstruction, and is an indication for surgical interference.

An obstructed appendix may give few local signs, but if intermittent colic and vomiting have occurred and slight tenderness and rigidity be found in the iliac region, no delay in operating is justifiable.

In cases where symptoms have been present for some days, and abdominal distension exists when the patient is first seen, diagnosis is often more difficult. The continuance of colic-like pains with obstipation points to an organic obstruction which may be in the colon. If colic be absent, a peritonitis of appendicular or pelvic origin is likely.

It must not be forgotten that an acute obstructive cholecystitis in old people may give rise to obstipation with abdominal distension—mainly right-sided and cæcal—and simulate closely that due to carcinoma of the colon, nor must the flatulent distension associated with a stone in the ureter be overlooked. Such cases, however, whilst they may challenge diagnosis, are seldom neglected. It is the early case, with impressive symptoms but few physical signs, which is apt to escape diagnosis.

SURGICAL TREATMENT.

Whilst prompt interference is rightly described as the fundamental factor of success, hurry may result in disaster. When a dehydrated patient, who has been vomiting fæculent material, is brought straight to the operating theatre and anæsthetised, avoidable risks are being taken. Vomiting may result in drowning or aspiration pneumonia. A heart acting feebly on a diminished blood volume may give out ere the operation is completed. A pre-operative delay of thirty to forty minutes, during which two pints of saline are

given subcutaneously and the stomach is washed out, should be a standard procedure in these cases.

Anæsthesia.—An operation which is so often exploratory, in so far as the true nature of the cause of obstruction is not known, may appear to demand a general anæsthetic. The advantages of spinal anæsthesia must not, however, be overlooked. The reduction of shock and the perfect relaxation obtained by this method are strong points in its favour, and if a skilled anæsthetist be not at hand, it is unquestionably the method of choice. Where the obstruction is obviously due to a tumour of the colon, a local anæsthetic will suffice for a cæcostomy.

Operative technique does not concern us here. It will suffice to say that the less that is done, consistent with relieving the obstruction and leaving no devitalized bowel behind, the better. In the after-treatment the continued need for fluid containing salt and glucose, the benefit from hypertonic salt solution given intravenously, and the value of the stomach tube, must ever be kept in mind.

In conclusion I would emphasize :—

1. The great responsibility which a medical man takes in advocating anything but immediate surgical interference in cases of doubtful intestinal obstruction.

2. The necessity for recognizing, and dealing promptly with, cases of acute appendicular obstruction.

3. The importance of making good dehydration by pre- and post-operative subcutaneous saline infusions.

4. The value of hypertonic saline intravenous injections to replace the loss of chlorides and stimulate peristalsis.

5. The value of pre- and post-operative gastric lavage.

6. The value of spinal anæsthesia, particularly in cases of strangulation associated with shock.

CHILD GUIDANCE.*

I.

Work in New York.

By Mrs. POSTHUMA, M.B., Ch.B.

In some marine insurance policies certain contingencies are grouped together under the term "acts of God." In former times children were looked upon in much the same way.

They were born (if Providence so willed), they were housed and fed more or less efficiently, they were educated more or less adequately (rather less than more in the case of girls), they were expected to be grateful to their parents for bringing them into the world, and to be the props of their old age.

These were the days when education according to the wise saw and the adage was the usual rule, "Spare the rod and spoil the child," "Little people should be seen and not heard," and the like. These precepts were evolved empirically through the ages, a good many, it may be suspected, rather designed for the comfort of the parent than the welfare of the child.

No doubt a good many children throve upon these principles or in spite of them, but there must have been always a large number to whom such generalizations must have been essentially useless or harmful. It is only comparatively recently that any general tendency has arisen to look upon the child as an individual, with the right to be considered as such from his first month

* Papers read at a meeting of the Bath and Bristol Branch of the British Medical Association held on 26th March, 1930.

onward. It has also come to be recognized that his environment, especially in the emotional sense, has a very large share, dating from his earliest days, in the process of his development.

The swing of the pendulum from the old, rigid, unimaginative methods of upbringing for a time produced a period of complete license in the nursery. Self-expression for the child was the slogan, and parents seemed to forget that " growing up " to adjust successfully and happily to the social restrictions and emotional complications of our present state of civilization is no such easy matter, and that it is their duty to help the young adventurers in a strange world, not by right of their parenthood, but by that of their wider experience and knowledge.

In the school world the growing recognition of the child as an individual can be traced by the rise of the school care committees and the school medical service.

In recent years the varying quality of minds has been taken into account, and the educational psychologist does valuable work in the grouping of children according to their intellectual equipment, and by giving advice on the question of vocational aptitudes. Most recently of all, the importance of the emotional element in the determination of the child's behaviour has been made the subject of study.

The present keen interest in these aspects of upbringing and education is met with in all parts of the civilized world, but it is in America that the development of this interest along practical lines has made most headway. The reason for this may be partly owing to the natural preoccupation of a young and growing country with its new generations, and partly owing to the fact that resources have not been crippled nor energies absorbed over there by the strain

of the Great War, as inevitably is the case in those countries more closely involved in the catastrophe.

The child guidance movement, of which I propose to give you a brief account to-night, is the expression of the most recent endeavour to co-ordinate all these points of interest, physical, psychological, emotional and environmental, in the study of the child, and to formulate the results in such a way as to make a basis for scientific evaluation of the facts arrived at, the problem being to reach a working idea of why one individual fails to make an adjustment to a life which apparently presents no difficulty to another.

The Institute for Child Guidance in New York City, at which I had the good fortune to be working for a year, is the largest and most lavishly equipped in the country, being especially set up as a training centre. The permanent staff consists of the medical director, assistant director, three psychiatrists, three psychologists, a pediatrician, the chief of social service, nine fully-trained social workers, a statistician, and a large office staff.

In a newly-opened clinic the staff usually consists of the medical director, who does all the psychiatric work and gives the physical examinations as well, a psychologist, and a fully-trained social worker.

In New York last year there were six psychiatrists in training for a period of a year, five of them holding fellowships under the Commonwealth Fund and one under the Rockefeller Foundation; these were required to be fully-qualified men and women with (preferably) two years' special psychiatric experience as well. There were three psychologists in training also holding fellowships for a year.

There were about forty social workers doing a nine-months' period of training. This consisted of an

excellent course of lectures and discussions at the New York School of Social Work under a psychiatrist, covering the field of normal and abnormal behaviour, with special bearing on the problems likely to be met with in child guidance work; they had various other lectures and demonstrations, and their practical experience in care work was gained at the Institute, where they worked directly under the trained staff of social workers.

For working purposes the Institute staff was divided into three units, each consisting of one psychiatrist, one psychologist and two social workers, to which were attached two psychiatrists, one psychologist and ten or twelve social workers in training.

The cases were sent up by the schools, private physicians or various social agencies.

The children varied in age from about a year up to eighteen years, and presented a vast variety of problems, varying from food-fads and temper-tantrums to truancy, lying, stealing and sex delinquencies.

A few of them were definitely psychotic, or at least showing symptoms with ominous suggestion; occasionally we had a feeble-minded child, but these were not accepted for treatment unless the circumstances were in some way unusual.

The majority of the children were average in intelligence, but quite a large proportion rated as of superior intelligence, and I had one boy who was referred by the principal of his school as being very unstable and in need of vocational guidance, who turned out to possess creative ability of a high order and an amazing talent for drawing.

One interesting fact may be noted, viz. that the vast majority of these problem children came from unsatisfactory homes, either foster homes, both parents

being dead, or where the parents were divorced or on the verge of separation, or where one or both were alcoholic or drug addicts, or where the parents were merely unstable themselves or of an extra low order of intelligence and incapable of managing a home. It was impossible to take all cases referred, so the main particulars were obtained and were brought up at a referral committee, which consisted of a psychiatrist, a psychologist and three of the chief social workers. The case was discussed from the various angles, and the most urgent and suitable accepted for treatment.

This having been done, the four-fold attack, as Dr. Lowrey called it, was brought into action, which means that the case was studied equally from the four angles, (1) the environmental, (2) the physical, (3) the psychological, (4) the psychiatric.

The first step was the visit of the social worker to the family. Much emphasis was laid on the fact that treatment here really began on the first day of contact, as future success often depended on how effectively the point of view of the Institute was presented to the parents, and in consequence how much confidence they would place in our line of treatment, and how much co-operation we could expect from them.

The social worker in the course of one or more visits would gather the essential etiological facts of the problem with a more or less complete family history, special note being taken of any possibly hereditary disease, and of any emotional difficulties the parents may have encountered in their own childhood, and of any jealousy situations or favouritism in the present family group.

The patient was next brought to the Institute for a thorough physical examination by the pediatrician. This being completed, the psychological study was

undertaken. In the hands of a psychologist trained in this sort of work a great deal of helpful information might be forthcoming, not only as establishing some reliable guide as to the child's intelligence, but also throwing valuable light on his powers of concentration, perseverance, methods of meeting his difficulties and handling his work ; emotional inhibitions might appear with important bearing on the case, and the existence of any special aptitude or disability be determined. I had one boy of eight who was sent up for nervousness, refusal to read in class, and crying when told to do so. He would read no story books, but had apparently no difficulty in getting what he wanted out of the popular scientific magazines. He tested out as having very superior intelligence with marked mechanical ability, but as possessing an equally marked reading disability. He could make out the meaning of a paragraph, but was unable to pronounce the words, and could not see why he should have to do so. The advisability of having a vocabulary if he wanted to get on well and go to college was put before him, and he saw the point. After three months' special coaching at the Institute he had quite caught up with the rest of the class and had become a voracious reader. The crying fits and nervousness had entirely disappeared, and he was improved in every way, having gained poise and self-assurance.

The psychiatrist's interview with the child was usually the last in the series of investigations, and the point here was to determine the patient's own reaction to the problem and the situation in general with the emotional factors at work. With the younger children it was a very informal affair. One played with the small person, and aimed at establishing a friendly and uncensorious relationship, in the course of which many

interesting facts might come to light; sometimes the picture thus gained would be surprisingly at variance with the reports gathered from the grown-ups connected with the child.

With the older boys and girls it was often found advisable for the psychiatrist to see them as soon as the case was referred; it was important to gain their interest and co-operation, and to give them some understanding of the Institute methods before the social worker approached their families for information, which procedure they might naturally resent as a threat to their young independence.

When once the social history and the various examinations were completed, the initial conference was arranged, and we all met together to discuss the case from our various angles, and to decide on a plan of treatment. One of the medical directors was usually present, one or more of the chief social workers, and any physician, teacher or representative of outside agencies interested in the case might be invited to attend, if such a course were considered useful or advisable.

The treatment plan varied so much with every case that it is not easy to generalize.

With the younger children, *i.e.* up to about seven, the development of the symptomatic behaviour for which they were referred, temper-tantrums, food-fads and the like, could, in most instances, be traced back to a desire for attention, *i.e.* if they could not get what they felt was the rightful amount of notice from their parents in a desirable form they would set out to get it in an undesirable manner, seeming to prefer a constant series of scoldings and beatings to no attention at all.

Treatment in these cases lay not with the child itself so much as with the family. It was the social

worker's business to interpret the situation to the parents, and to proffer suggestions on training and management in such a way as to be acceptable by them. She would pay them weekly, fortnightly or monthly visits according to the urgency of the case; she worked in close co-operation with the psychiatrist and the psychologist by means of frequent informal conferences, and any new development was at once reported to us all.

Sometimes the main line of treatment lay with the psychological department; in one case the child came up for coaching in reading while I had weekly interviews with the mother, a very interesting but most unstable person, with whose own personality as determined by unfortunate experiences lay the principal problem in the case.

With the older children and the adolescents the usual procedure was for the patient to come up for more or less frequent interviews with the psychiatrist, while the social worker kept in touch with the family.

In all our training much emphasis was laid on the importance of considering the situation as a whole, and of realizing the interaction of all the personal and environmental factors on the problem as presented. The social worker was encouraged to discuss the cases freely with the psychiatrist and the psychologist, and the value of the whole method would seem to lie largely in the excellence of the team work thus obtained; the brunt of the treatment might fall sometimes on the psychiatrist, sometimes on the psychologist, sometimes on the social worker, but by this system of close co-operation we were enabled to keep sight of the fact that each case should always be viewed from the three angles, and were able to give the underlying

mechanisms their full evaluation as further study might bring them to light.

It is useless to think that the Child Guidance movement is out to put an end to juvenile delinquency or to prevent the development of adolescent psychoses ; it may, however, be taken as probable that a certain proportion of the cases which are being treated, and which are apparently progressing satisfactorily, would, if left to themselves, grow up into those unhappy, ill-adjusted, neurotic semi-failures in life who are a misery to themselves and their families, a type met with only too commonly in all countries. The work has not been going on for long enough to show end-results, but as we see very clearly the unhappiness of the parental childhood experiences being perpetuated (often unconsciously) in the treatment of the child, it would seem not unreasonable to hope that the increased sense of security and consequent happiness brought into the lives of these children by the sympathetic study of their problems may bear fruit not only now but in the next generation.

In the United States Child Guidance Clinics are now springing up all over the country in response to a wide-spread demand.

Through the generosity of the Commonwealth Fund of America a demonstration clinic has been started in Islington, London ; the same organization has been inaugurating clinics in various large cities in the States, which are now supporting themselves.

It is sincerely to be hoped in the interests of the rising generation that this public-spirited lead may be followed in this country with an equal degree of enthusiasm and success.

II.

Clinics from the Brain Physiologist's Viewpoint.

By R. J. A. BERRY, M.D., F.R.C.S., F.R.S.E.,
Director of Medical Services, Stoke Park Colony.

As one who has had considerable experience of mental work amongst normal and abnormal children, first in the special clinic which I had the privilege of instituting in the Children's Hospital, Melbourne, and more latterly at Stoke Park Colony, Bristol, I am naturally in entire agreement with the opener of this discussion, Dr. Posthuma, in her appeal for the establishment of Child Guidance Clinics in this country. She has given us an admirable account of the American models of such clinics, and her account I can confirm from my own experiences in the United States. Where, possibly, I may differ from Dr. Posthuma, assuming that I have not misunderstood her, is that I do not regard the American model as the best to be followed or established in Great Britain, because I believe that we can do much better than the Americans. Those of you who are at all familiar with the history of medicine in Great Britain and the United States of America will know just as well as I do that, with very few exceptions, medical education in the States was, until quite recently, in a backward condition, consequent on the persistence, into quite recent times, of the American proprietary medical school, the products of which were not infrequently medical cranks, quacks, and ignoramuses, who bought their medical degrees for a few dollars. Notwithstanding that the Americans have swept away most of these places, and erected in their stead splendid medical schools, hospitals and laboratories which command one's whole-hearted admiration, the cloven hoof of the faddist is still everywhere visible in

the United States of to-day. There is much to admire in the United States, there is much we might, with advantage to ourselves, copy and emulate—Child Guidance Clinics among them—but there is also much to be avoided. Confronted, as we are, with the distinct possibility of the Americanization of Europe and Empire, it behoves us to walk carefully in the selections we make from the good and the bad in the vast United States of America.

Dr. Posthuma has very correctly made it clear that, in their Child Guidance Clinics, the Americans talk much of psychology, psychiatry, psychoses, infantile emotional strains, and other resonant words and phrases, whilst the final diagnosis is established in a species of Rotary Club round-table conference. The natural and inevitable result is that the main factor is missed or largely overlooked, and that is, that the child is a growing developing organism with an expanding brain, and that developing brain is the key to the whole problem of the child and his reactions. I have never yet met in any American Child Guidance Clinic anyone on the staff who possessed what I, at least, regard as an adequate knowledge of brain physiology. That this should be so in the United States causes no surprise, but that we in Great Britain should look to American psychologists for guidance, rather than to our own splendid galaxy of brain physiologists—Sherrington, Shaw Bolton, Watson, Albert Wilson, Mott, Tredgold, and very many other equally distinguished mental specialists—is surely an unfortunate instance of the prophet being without, if not honour, at least an adequate following in his own country.

In our Child Guidance Clinic work at the Children's Hospital in Melbourne we followed, or attempted to follow, British teaching rather than American, for the

very simple reason that we believe British neurology and brain physiology far in advance of anything in the States, and we were entirely satisfied with the results. After a long laboratory, practical, clinical and scientific investigation, we eventually put into operation at the Children's Hospital a special type and mode of examination of every child referred to the clinic by the medical staff. These measurements and observations, in which the Binet tests form only a small part, and are even then employed, not as a measure of intelligence, which they are not, but as an indication of what has gone into the child's brain from the receptor side of its nerve mechanism, whilst the Porteus tests are similarly utilized as a check on the child's effector output, are all devised with the express object of determining, where possible, the relative state of development of the child's brain, because his reactions depend upon and vary with that development. These methods have been so fully described by me elsewhere, and are available to all in book form, that I shall not here describe them. They will, however, be put into active operation at Stoke Park within, I hope, the next three months, and as you will then be able to see them for yourself, we shall be quite content to stand or fall by the results, and by your judgment of those results.

Speaking broadly, every human being depends for his mentality on two great factors—heredity and environment. There is to-day no room for discussion and squabbles as to the relative importance of these two factors, because we now know the truth. Both play their part in developing the brain up to the necessary standard of a normal reaction to the environment. Again, and equally broadly, all human beings may be divided into the unsane, the sane and the insane, or, in more accurate scientific language, the aments, the

normals, and the dements. In our physiological development those of us who live to a sufficiently ripe old age pass through all three stages. We commence life as senseless automata, rapidly unfold to Nature's greatest triumph — the normal human brain, and gradually undergo sexual, cerebral and somatic dissolution.

As regards the potent influence of heredity in determining an adequate supply of cells in the child's brain, there is to-day no room for doubt. Every study shows the appalling consequences of a rotten heredity, not only on the brain growth of the child, but in the terrible social, economic and national results which follow such degrees and stages of unchecked amentia. These unfortunate products of heredity — the degenerates with too few brain cells to give those reactions to their human environment described and regarded as normal by normal people—cannot adjust themselves to the social conditions around them. With an ineffective pyramidal-cell layer of control over those animal instincts present in all of us, but which we like to pretend are not, they freely propagate their kind, and have, on an average, twice or three times as many children as do the normal. They therefore continually add to our burdens of pauperism, degeneracy and crime. Surely, then, it is of the first importance to ascertain, if possible, the actual state of development of the brain of the growing child, and which way he is likely to go.

It seems to be forgotten in most of the American Child Guidance Clinics that at birth the child's brain is largely in a neuroblastic condition, and that these neuroblasts have to be converted into fully-matured and medullated neurons before we can attain even a moderate degree of human intelligence. Sherrington's work points to the fact that this conversion of

neuroblast into neuron results from incoming nerve impulses from entero-ceptive, proprio-ceptive, and especially extero-ceptive senses. Expressed much more simply, this is where environment enters into the problem. These impulses are perpetually pouring into the child's brain, constantly modifying the neuronic pattern of that brain, and just as constantly altering the mentality and the nature of the reactions to the environment. So long as educationists continue to teach that half truth, or more accurately one-fifth of the truth, that we have only five special senses, instead of about twenty-five, just so long shall we continue to fail to realize the vast importance of environment and education in modifying mentality. And here undoubtedly we have much to learn from the United States, for their social service hospital system commands one's whole-hearted admiration. After my return from the States I put it into operation at the Children's Hospital, Melbourne, so far as our very modest financial resources permitted, and the following case from that hospital will serve to illustrate the significance and effects of heredity and environment, and the uses of an intelligent social service :—

A boy of very doubtful mentality was under my observation from about the age of 11 to 14 years. His I.Q. by the Binet and Porteus tests was a little below normal, but he was undersized, microcephalic, and of bad heredity, and I was, therefore, notwithstanding his educational tests, strongly suspicious of high-grade amentia. However, in view of his fair educational record, we gave him the benefit of the doubt, but kept him under observation. In November, 1928, after the onset of puberty, he again appeared at my clinic, with a report from the police of grave sexual misbehaviour of criminal type. Powerful new impulses were now passing into and profoundly altering his brain, so the diagnosis soon became certain. On medical grounds it became equally certain that the neurological facts were of greater import than the educational, for they showed a lack of development of the controlling supra-granular

pyramidal-celled layer of the cortex, and were now of much more significance than the more educational Binet tests. A prognosis of potential dangerous criminality, unless an adequate supervision could be exercised, was made, and the Social Service system was set in operation. My assistant was asked to examine and report on the home surroundings and the nature of the environmental influences to which the boy was subjected. These were uniformly bad. Both the parents were mentally deficient, the home environment was deplorable, and it became of the utmost importance—if the boy was to be saved for society—to remove him to a better and different environment. Arrangements were made to have him taken into a home for such boys under the care of one of the Anglican churches, but the mother refused point-blank, not because of any great or undue affection for the boy, but because she considered him to be of a wage-earning age. Within three weeks of this effort the boy murdered his younger brother, and thus established the accuracy of both diagnosis and prognosis, and proved the dual influence of heredity and environment.

It is true that one swallow does not make a summer, but, fortunately or unfortunately, I can give you not one proof but many of the absolute necessity of studying, not so much the emotions and fads of the child, as the Americans would have us believe, but the state of development of the child's brain, in accordance with the teachings of the best and greatest of our English brain physiologists.

All my experience leads me, therefore, strongly to support Dr. Posthuma in her eloquent appeal for Child Guidance Clinics, but that experience also leads me to believe that embryology and physiology should be our guiding stars, rather than the -ologies and -isms of a non-scientific and often non-physiological psychology. The children of to-day are the real wealth of the nation. Is then their future to depend on the unverified opinions of an amateur, superficial, and bungling decade, or is it to be the product of scientific research and knowledge ?

III.

Work in Great Britain.

By R. G. GORDON, M.D., D.Sc., F.R.C.P.E.

Mrs. Posthuma has indicated to you the nature of Child Guidance work, and how it is carried on in America. You must realize that there it is essentially a going concern, while here it has scarcely begun. In almost every important city in the States may be found an active Child Guidance Clinic, each with its own problems and its own particular angle of study depending on the leanings of the director and his staff, but all imbued with the enthusiasm of pioneer work which is well worth doing. Work of a similar kind is being done in a less systematic way in other countries, more particularly in Germany, where the "Jugendsamt" takes a real and lively interest in the mental welfare of the children.

Up to the present in this country there has not been a great deal of systematized work done along the lines of child guidance. On the medical side much attention has been paid to the problem of mental deficiency, but with this child guidance has little or nothing to do, except in so far as it may be necessary to recognize the mental defective who comes to the clinic and transfer him to the care of those who are primarily responsible for him. On the social side much has been done in the direction of rescue work, but with this child guidance has still less to do, and must on no account be confused with it. There is a tendency in this country for confusion of mind in both these directions, but it is to be hoped that this will be

eradicated, for such misconceptions will do much harm to child guidance: the one by giving to the parents an idea that by bringing their children to the clinic they are confessing that their children are wanting, and the other by bringing into what should be a scientific investigation a moral, religious and even sentimental tone. Psychotherapeutic investigation and treatment of children has been undertaken for several years at the Tavistock Clinic in London, and also at Edinburgh, Portsmouth and Stoke-on-Trent, but this is hardly child guidance, for as Dr. Posthuma has told you, child guidance is more than this, and indeed does not necessarily involve psychotherapeutic measures at all. For the last two years or so the Jewish community has maintained a clinic in the East End of London, under the direction of Drs. Emanuel Miller and Noel Burke, which is on the lines of true child guidance. In the last seven or eight months the demonstration clinic which has been established by the generosity of the American Commonwealth Fund has been in active work in Islington, under the direction of Dr. William Moodie. This is established more or less on the lines of the typical American Child Guidance Clinic as an independent unit, having affinities with other medical services but no close connections with them. Liverpool has just opened a clinic supported by voluntary efforts and by a grant from the Commonwealth Fund. For the last two years or so we have had a Child Guidance Clinic in Bath, run as part of the school medical service.

It may be of interest to consider the possible ways of establishing a clinic and the pros and cons attached to each. It seems to me that there are three possible methods. The clinic may be set up as an independent unit, it may be attached to a mental hospital or a general hospital, and it may be established as part of

the preventive health service of the locality. An independent clinic has two obvious advantages and three disadvantages to my mind. The advantages are that it can be entirely dissociated from any idea in the mind of the parent and the child of illness and formal treatment, and the staff are free to develop their work along any particular line which seems to be good to them, a right and proper principle in a new and experimental venture. The chief objection in this country is cost. Separate premises are required, a large separate staff is necessary as Dr. Posthuma has explained, most of whom must be paid, and there seems no obvious means of raising the large sums of money required. Something, no doubt, can and will be done by the Commonwealth Fund to promote the cause of child guidance, but it is neither reasonable nor seemly to expect the American public to finance social services in this country, which, if worth doing, should be supported by ourselves. The only other source of income is through voluntary subscriptions, and with the constant demands on the public purse from taxation on the one hand and the various hospital appeals on the other it is difficult to see where the money is to come from for this somewhat expensive undertaking. Another disadvantage is the reduplication of social services. The independent clinic must have its own social workers, and I do not think the British working-man is too keen on having his home invaded by a number of strangers, however tactful and however well-meaning. If, then, any given home is subject to visits from the health visitors of the school medical department, the social worker of the Child Guidance Clinic and a visitor from one or more church organizations, I for one can hardly wonder if the door is sometimes slammed to and kept slammed. Thirdly,

there is the initial difficulty of attracting cases, and to do this the independent clinic must indulge in a certain amount of propaganda. The difficulty about propaganda is that to be effective it has to be somewhat dramatic, and it is easy to make, or at least to imply, extravagant claims, and I think it is most important that child guidance should not do this at the present juncture. We do not really know how much we can do, and indeed how much we are doing, for some figures which I shall give you presently make us pause. To my mind, all that a Child Guidance Clinic should set out to be is a consultative and advisory centre for children with difficulties in the emotional or mental sphere, in exactly the same way as do clinics for the eye, the ear and the heart in their respective spheres. At present these clinics should make no claims to prevent delinquency, psychosis or even psychoneurosis, however much we may hope that the future will show that such claims might have been made and will provide justification for ultimate propaganda along these lines.

The establishment of children's clinics in connection with mental hospitals has the advantage of tapping a source of trained psychiatrists to carry on the work, but it is going to limit the scope of the material to a very large extent, for it is essential that the children should come at the beginning of their difficulties and not when these have reached such proportions as to result in alarming behaviour. With the prejudice against mental illness which is, alas! so rife in this country, it is hardly to be supposed that parents will readily bring their young and only slightly difficult children for advice and treatment to the mental hospital.

The establishment of a clinic in relation to a general

hospital has the great advantage that it would have at its command the whole laboratory and other resources of the hospital, and in the case of the teaching hospital opportunities may be given for the training of students to carry on and develop the work. Child guidance work, however, cannot be done in public, and it may be difficult to secure the use of suitable rooms where the clinic can be carried on free from interruptions and disturbances. The atmosphere of hospitals also may not be favourable, since the child may associate it with severe illness, tonsils and adenoid operations and so on. Further, the social services of hospitals in this country are not particularly well developed, and as has already been sufficiently emphasized, this is a very essential part of the work.

To my mind the most likely method is the establishment of the clinic as part of the preventive health services of the community. Child guidance is essentially preventive, and it seems to fit in with the other services provided for this purpose. Through the infant welfare centres and the school medical services there is a close supervision of all the children of the community who are suitable for a clinic of this sort, and it is easy to get children brought to the clinic who give trouble at home or in the school. The parents and children are used to come up to the department for advice, and there is no idea of illness or suffering associated with it. There is an organized system of social work which with a certain amount of adaptation and specialization can be used for the purpose of child guidance with a minimum of overlapping. It is, of course, necessary that the health authority should be sympathetic and helpful, but unless this were so it is obvious that no clinic could exist. Since we run our Clinic in Bath in this way, it

may be of interest to give a short description of how we do it.

First, I may say we are fortunate in having the full interest and co-operation of Dr. Blackett, the Medical Officer of Health; secondly, we have the services of Dr. Thomas and Miss Greenall, the School Medical Officer and the Care Secretary, who give a great deal of time and labour entirely voluntarily; and, thirdly, I have been able to enlist the generosity of a lady who has guaranteed the salary of our half-time special social worker, which is practically our only expense.

The children are chiefly drawn from the schools, though the parents are beginning to bring them of their own accord without any prompting from the educational authorities. They have been thoroughly overhauled from the physical side by Dr. Thomas in the course of his school medical inspection. A psychological report, *i.e.* the result of an intelligence test, is provided by him in each case—fortunately he is particularly interested in this work. A report on the home conditions is given by the social worker and a full report is obtained from the school teacher. With all this information available I see the mother, who tells me the story, then the child is brought in. While waiting he has been allowed to play with a collection of toys we have in the waiting-room, and if there is anything significant in his choice or use of the toys this is reported to me. The mother and child are then seen together and, finally, the child by himself. An attempt is made to diagnose the situation. If physical factors are suspected, I refer him to my own out-patient day at the hospital, where I arrange for the necessary investigations. Out of a series of fifty cases the following special conditions of the child have been

discovered, the rest being more or less social maladjustments in which the home or the parent was more involved than the child himself:—

Psychoneuroses	3
Glandular defect	3
Syphilis	2
Chorea	4
Moral defective	2
Post-encephalitic	2
Epilepsy	1
	17

Once a month those of us who are specially concerned with the work meet and discuss the cases seen in the interval, hear reports of investigations carried out, and try to determine a course of procedure for the child. On the whole these procedures are quite simple. Once a quarter we have a more formal committee meeting with a solicitor, a parson, a representative of the Education Authority present, so that we may obtain their co-operation in school adjustments, social factors, enlisting the child in Girl Guides and Boy Scouts and so on.

Now to what extent are we useful? To obtain light on the subject we followed up the careers of 100 children who were referred to the School Medical Officer during the last nine years on the supposition that they were mentally defective, but really in the majority of these cases because they were a difficulty in school. Although most of these 100 children were below the 100 per cent. intelligence quotient as estimated by the Terman scale, none of them were certifiable under the Mental Deficiency Act, and continued their careers in the ordinary schools. The

full report of the investigation may be found in an article published by us in the *British Medical Journal* of 15th March, 1930. Suffice to say here that although some 50 per cent. showed somewhat serious maladjustments at school age, over 90 per cent. made good later on. Many of these did receive a certain amount of the sort of help that child guidance gives, but of course without any formality of an established clinic, since they were all dealt with before the clinic started. If this is so, is a clinic necessary at all? I think it is for two reasons. Firstly, if we can avoid the continuance even for a time of these early maladjustments we can save the child a great deal of unhappiness, and although in the majority of cases a reasonably good adjustment seemed to have been made in late adolescence and early adult life, the study of psychoneuroses shows us that early difficulties may later come home to roost, so to speak, and our investigations have in no case gone beyond the twenty-second year. Secondly, from the point of view of research it is important to discover what sort of emotional stresses the average child is put to and the extent to which these can be removed in the early stages. To my mind the essential part of child guidance is the follow-up work, and in our clinic we make no attempt to cover an extensive field, but we do hope to achieve an intensive follow-up of our cases.

I would suggest, then, that in this country it will be necessary to start these clinics as we have always started everything, on a voluntary basis, and only if and when they have really proved their usefulness can we ask the taxpayer to shoulder the burden of full remuneration of the whole of the staff. Perhaps the most important individual is what the Americans

call the psychiatrist, though I am not sure that the name is a good one, but he must have a fair amount of experience in psychiatry and psychological medicine, especially in relation to children. He must also be able to keep an eye very widely open for physical defects, such as epilepsy, encephalitis, syphilis and perhaps rheumatic infection, and, above all, he must not be wedded to any particular fad of theory or practice. Similarly, the rest of the staff must avoid the danger which seems to me to be a very real one in America. I refer to the extreme specialism which seems to abolish all sense of proportion and make the individual feel that her methods matter more than anything else. They must all have some knowledge of life, and realize that slight eccentricities may be quite compatible with normality and do not necessarily represent some gross pathological condition.

Child guidance is largely common sense. The psychologist and the social worker must be trained to observe and report facts as they are, and not indulge in their own particular theories and bend the facts to fit them, and, finally, there must be a general enthusiasm and will to co-operation which should not be difficult to bring to bear on this fascinating study.

STOKES-ADAMS SYNDROME PRODUCED BY DIGITALIS IN A CASE OF AURICULAR FIBRILLATION.

BY

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A NUMBER of cases have been reported from time to time in which heart-block has been produced by digitalis therapy, but I have been unable to discover any reference to the occurrence of the Stokes-Adams syndrome under these conditions. The following case may, for that reason, be of interest:—

The patient was a married woman, aged 37, who had a definite history of rheumatic fever at the age of 23. She was in good health, had two children, and suffered from no cardiac symptoms till eighteen months ago, when she began to have dyspnœa on slight exertion, this became progressively worse till she was confined to bed eleven months ago with orthopnœa. Nine months ago œdema of the legs and ascites appeared and persisted, although she was still in bed. There were occasional attacks characterized by a feeling of tightness in the chest, followed by profuse sweating and retching, which lasted a few seconds and were not accompanied by any loss of consciousness. Such attacks occurred at almost weekly intervals, irrespective of the treatment she was receiving; there was no evidence that they were due to digitalis, as this drug was found to have very little beneficial effect, and was only exhibited at intervals in small doses. For the two months prior to admission to hospital she was taking one Nativelle granule daily, and there had been no attacks for the past three weeks. Unfortunately, there is no definite record as to the date of onset of auricular fibrillation, but apparently it had been present for quite twelve months.

On 6th March, 1930, the patient was admitted in a state of exhaustion, with orthopnœa, considerable ascites, and

œdema of the lower extremities. She was fibrillating and the pulse was hardly perceptible, with a rate about 85. The heart dullness extended from the mid-line to the anterior axillary line. A loud systolic bruit was heard at the apex and at the aortic base. Blood pressure, 105/95.

In view of the increasing ascites and her exhausted condition it was thought advisable to try the effect of digitalisation. She was given thirty minims of the tincture four-hourly for six doses, and showed considerable improvement; the dose was then decreased to twenty minims thrice daily for three doses, on the third day, and her condition was then very satisfactory; there was no nausea and the pulse was more steady at a rate of 72, but still fibrillating. By this time she had, therefore, been given three drachms of the tincture in forty-eight hours.

During the night following the last dose of digitalis the pulse suddenly became regular at 36, and there were six Stokes-Adams attacks within the course of one and a half hours. Each of these began with a feeling of faintness for a few seconds, followed by vomiting and then complete unconsciousness with generalized convulsions for 15–20 seconds, during which time there was no ventricular systole. There was complete recovery between the attacks. Adrenalin was given with success, but the pulse remained regular at 36 for several hours. No more digitalis was given.

On the fourth day (that following these attacks) the general condition was fairly good; the pulse was 70, with occasional dropped beats but no auricular fibrillation.

On the evening of the fifth day the patient became much worse and had *pulsus alternans* for four hours. Unfortunately no pulse tracing was taken, but the beats felt equally spaced, and it did not appear to be "coupling."

On the sixth day there were occasional dropped beats, and on the seventh auricular fibrillation reappeared. Coincidentally with the return of fibrillation the patient's condition improved, dyspnœa was less and there was a slight diminution of ascites, with some increase of urine excretion.

There was then no change till the twenty-third day, when extreme cyanosis and dyspnœa developed and the patient died. Permission was not given for a post-mortem.

I am indebted to Dr. A. G. Gibson for his kindness in allowing me to report this case.

DENTAL INFECTIONS: THEIR DIAGNOSIS AND TREATMENT.*

BY

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AT one time a paper with such a title would hardly be expected to appear on the programme of a Medical Society, but in these days, when the close relationship between dental infection and systemic disease is so well established, I thought it might be of interest to give some account of the conditions found by the dental surgeon which may be responsible for disease generally or locally. Really it is no more unreasonable to consider dental conditions at a medical meeting than it is to consider, say, eye conditions.

Dental infection may cause systemic disease by direct extension into adjacent structures, or by metastasis to distant parts of the body. Infection may spread from a tooth into the alveolar process, producing a diffuse osteomyelitis; into the soft tissues, producing a cellulitis; or into a neighbouring lymph gland, producing a lymphadenitis.

The maxillary sinus is not infrequently infected from the upper molars or pre-molars. Occasionally a

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sinus thrombosis may result from the direct extension upwards of an acute dental infection, and very rarely a true septicæmia may result.

It is true that dental infection occurs with great frequency in comparison with the incidence of proved systemic disease of focal origin.

Many individuals, doubtless, carry infected teeth throughout life without showing manifest disease of focal origin, although marked injury of vital organs may result from the long-continued absorption of poisons without being recognized. Myocardial disease, which is responsible for such a high proportion of deaths after middle age, is an excellent example. The relation of focal infection to such lesions is often lost sight of. On the other hand, not infrequently disease due to other conditions has been incorrectly attributed to focal infection.

Now let us consider what are the sources of dental infection. They may be divided into four groups: pyorrhœa, devitalized teeth, retained roots of teeth, and residual sepsis.

As to *pyorrhœa*, it must be emphasized that the condition locally consists of an inflammatory condition which slowly extends into the spongy alveolus and, therefore, in time into the jaw proper, giving rise to residual sepsis. At the same time the pulps of the teeth become infected and a blood infection is added to an infection by surface extension. As Sir Frank Colyer remarks, it is not safe to judge the extent of this disease from clinical appearances only, and it is necessary to call in the aid of X-rays in order to ascertain how far bone destruction has proceeded. The gums may appear healthy, yet there may be an extensive disease of the alveolar process around the roots of the teeth and considerable bone destruction,

the involved area being heavily infected with pathogenic streptococci.

The grave clinical effects resulting from infected bone are well known, and it is highly probable that the general clinical effects produced by dental infections are accounted for by the extent and nature of the disease of the bone in the neighbourhood of the teeth, rather than by disease in the gums or the teeth themselves. "It cannot be insisted upon too strongly that in every case of illness in which the teeth may be primarily responsible, even if the external appearances of the teeth and gums are healthy, a radiographic examination should be made to ensure that the alveolar process around the teeth is also healthy." The important point to remember is that even in the early stages of the disease there is an extension of infection to the stomach and bowel. Normally organisms swallowed are dealt with by the gastric juice, but in certain conditions of achlorhydria the duodenum first and then the lower intestine become infected from the mouth. The importance of this point is, that as in the past many people have lost their teeth without deriving any improvement of the condition from which they are suffering, it may possibly be explained on this theory, that the infection has extended to the colon, and removal of the teeth can have but little effect. Thus failures in obtaining a cure or improvement by removing the infective focus should only emphasize the importance of the early removal of dental infection. We should prevent the development of systemic disease rather than attempt to cure it after it has developed.

The next division of oral sepsis to be considered is that caused by *devitalized teeth*, or those teeth in which the dental caries has extended so deeply that the cavity

is either too sensitive to stand filling or so deep that the pulp has already become infected. In these cases the pulp is anæsthetized and extracted, and an attempt is then made to clean and sterilize the canal and to fill it. The endings of the canals are so tortuous and narrow that it is impossible to fill these canals aseptically with any certainty. Infection is shut in and is pumped into the bone and the blood-stream.

Opinions are divided as to which of these two conditions, pyorrhœa or devitalized teeth, is more responsible for systemic disease.

The next division is that of *retained roots or fragments of teeth*, or *impacted unerupted teeth*. It is estimated that in cases of completely edentulous jaws, 25 per cent. are found on careful X-ray examination to present one or more tooth remnants.

Fourthly, there is *residual sepsis*. This condition has recently come into prominence since the frequent use of dental X-ray examination. It is only reasonable that such areas of residual sepsis should be found when one considers the technique of tooth removal.

It may be well now to describe what constitutes a thorough dental examination, and for the time being I am considering only those patients who have to all intents and purposes taken care of their teeth, not those whose mouths are in a terrible state from neglect. It is in these patients that we shall more commonly find peri-apical infection, but in these cases also it is extremely difficult for the dental surgeon to advise extraction unless there is some chance of the patient benefiting. The first stage of the examination is to test all teeth for vitality. This is done by subjecting each tooth to hot and cold stimuli. Even non-carious teeth may have dead pulps. Then all areas of the jaw must be X-rayed, whether edentulous or not. It will

then be seen which teeth have been devitalized by the dental surgeon and root-filled, while those which have become dead through infection or injury, and any fragments of teeth, or areas of residual sepsis, will also be disclosed. It is impossible for anyone, even a dental surgeon, to give a satisfactory report on the mouth by mere inspection, so all patients should have an X-ray examination. Time is too short for me to discuss the question of devitalized teeth which show changes in the X-ray, and those which apparently show no changes. It will be sufficient to say that those which show no alteration in the bone have usually been found to be more harmful than those which show changes, the explanation being that abnormalities seen in the bone are frequently the result of resistance put up by the patient.

The prospect of benefit by dental treatment is so uncertain that it is only fair to the patient that no improvement in the general condition be promised, and yet it is reasonable to suppose that removal of dental sepsis must lessen the load of the individual patient. The earlier the dental sepsis is discovered the more hope of benefit. Blood examinations in diagnosis are of very little assistance, and it is unfortunate that at present there is little or no means of establishing a dental responsibility. Leucopenia and leucocytosis may either of them be found. The former condition is to be regarded as a danger signal, and in such cases extractions should always be few and comparatively far between. However, to my mind it is always advisable to go slowly in the matter of extractions. Any reaction following extraction is stated to be hopeful of benefit. This is particularly true of eye conditions. In all cases improvement in the general condition should not be expected too quickly. In

arthritic conditions particularly improvement is long delayed.

Nothing that has been stated in the discussion of the treatment of infected teeth is to be interpreted as over-emphasizing dental infection in comparison with other foci of infection, and in studying patients with systemic disease of focal origin, all possible foci of infection should have careful clinical consideration. It is often apparent that serious damage results from focal infection without being recognized early enough to obtain satisfactory results from removal of the focus.

These facts justify the serious consideration of dental infection as a factor in the causation of disease, with special reference to its complete and early removal.

RECENT DENTAL RESEARCH.*

BY

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Dental research is greatly handicapped by the fact that the training of dental students has necessarily to contain so vast an amount of the purely mechanical. Secondly, the almost complete absence of full-time teaching or other dental appointments at the universities is a bar to research. Thirdly, the lack of co-operation between the medical specialists and the dentists is a great handicap to progress. In hospital the physician can on any case obtain the services of a whole team of specialists, whereas the dental surgeon is usually lucky if he can get the assistance of the radiographer alone.

Along the commercial side, research, both by the big manufacturing firms and by individual dentists, has been extensive.

In orthodontia specialists have arisen, and consequently extensive investigations are at last being made as to the causes of mouth deformities and displacement of teeth, but comparatively little definite information has so far been discovered.

To the work done on dental sepsis as a factor in systemic disease I will refer but briefly, as it is only a few months since Mr. Fawn addressed this branch in Bristol largely on that subject. Dr. Bulleid, working

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under the Medical Research Council, has made cultures from a very large number of cases of extracted teeth with rarefied areas, chronic abscesses and granulomata. He found streptococci of all types, but chiefly the non-hæmolytic or viridans type, staphylococci, chiefly albus but also aureus, and also a diphtheroid bacillus—Bacillus xerosis. The ærobic and anærobic findings were identical, except that in some cases of granulomata he was able to isolate the Bacillus fusiformis and Leptothrix buccalis anærobically. From the finding of the latter he deduces that repair by calcification may be possible in the granulomata. In no case did he find the proteolytic organisms which are responsible for the bad smell in septic root canals. From his cultures he inoculated mice, and found that the most virulent organisms were those from areas of rarefaction. The cultures from granulomata (which incidentally are the cases which show up best in X-ray photographs) were comparatively innocuous. He further compared his findings with the X-ray photographs taken before extraction, and concludes thus : " No dead tooth can be permanently sterilized whatever technique is adopted, and the teeth least likely to show gross apical sepsis are those in which the root canals are left unfilled or only partially filled."

The subject of residual sepsis is much discussed in dental circles at present, but I can find little of value as yet published about it. The idea is that the mere extraction of a septic tooth, particularly in the lower jaw, may not be sufficient to remove the infection caused by the tooth. There may, of course, be a root remaining, but apart from that there may also be left an area of infected bone, which may continue to feed infection into the bloodstream.

Coming next to the cause of dental caries and its

prevention, we find that there are three schools of thought. The first discovered many years ago that carbohydrate decomposition produced an acid which dissolved the enamel, and thereby enabled the mouth bacteria to attack the dentine. They therefore started the slogan, "Clean teeth do not decay," and, content with that, went no further, except to attack investigators along other lines with a surprising virulence. Unfortunately many people who have taken every possible precaution to keep their teeth clean suffer severely from caries. Also one sometimes meets complete freedom from decay in the mouth of a person who has taken no precaution to clean his teeth.

Secondly there is the theory advanced mainly by Broderick of Bournemouth, that in any tendency towards body acidosis, calcium is taken from the tissues and saliva to neutralize the excess acid, and this produces a degree of acidity in the mouth which renders possible an electrical reaction, causing loss of calcium from the enamel of the teeth. In practice what would happen is that there would be a highly acid focus due to food decomposition, let us say in a depression between the cusps of a molar. There would also be an acid of lesser strength (the saliva) bathing both the tooth and this focus. The strong acid frees ions of calcium from the tooth, which are of the same sign as the tooth and are therefore repelled from it. The result is loss of calcium enamel. In support of this theory is (1) the undoubted fact that an acid saliva is usually to be found where there is rapid caries; (2) various forms of indigestion are followed by decay; (3) fevers and other diseases in children which produce an acid saliva usually also produce caries. So far, however, no conclusive statistics have been produced. In 1927 and in 1928–29 I carried out a series of tests on the acidity

or hydrogen-ion concentration of the salivas of a large number of boys, the results of which were given to dental meetings at Cheltenham and Exeter, and afterwards published in the *British Dental Journal*. While these tests did not entirely support Mr. Broderick's views, they did not disprove them. Where, I think, Broderick makes a mistake is in assuming that an acid saliva means one with less calcium than a more alkaline saliva. Lee Pattison raised the calcium content of a group of patients by giving them a diet rich in milk, cod liver oil and egg, but reports that the pH bore no relation to the amount of salivary calcium.

The vitamin school, as it is called, relies on actual clinical findings rather than on a definite theory. The chief worker here is Mrs. Mellanby, who has spent eleven years experimenting on the teeth of animals by means of diet. She has also made experiments on children, but the only one so far published was to some extent spoiled by the introduction of too many differing factors in the diets. She has undoubtedly proved that developing teeth are adversely affected and rendered prone to future decay by lack of vitamin D in the diet of the pregnant mother and the very young offspring. The moot point is as to whether teeth when once erupted can be influenced by diet in other ways than mechanically. Until very recently it was taught in every dental school that enamel, once formed, could only be affected by mechanical stresses or chemical action of acids; that under no condition could any improvement in its condition be effected. Now the experiments of Fish and Caush lead, shall I say, the less sceptical of us to believe that there are evidences of a lymph supply in the enamel, and, to my mind, clinical observation points to a likelihood of the enamel acting in a similar way to most parts of the body in resisting disease.

To test the action of vitamin D and also of

parathyroid extract on the calcification of erupted teeth, or at least their action in preventing decay, I divided all the boys at the Somerset Boys' Home who were expected to remain there for a year into three groups as equal in every way as I could. Let us call these groups A, B and C. A was the control, B were given two "ostelin" pills a day for twelve months; C were given the same number of "ostelin and parathyroid" pills. The "ostelin" tablets contained ostelin 4 m., calcium glycerophosphate 2 gr.; the "ostelin and parathyroid" tablets the same plus 1/40 gr. of desiccated parathyroid extract. The tablets were supplied free of cost at my request by Messrs. Nathan, the manufacturers, but the experiment was entirely in my hands, and had no other connection with the firm. For certain reasons the disbandment of the school began before the end of the year of test, and therefore my groups which started twenty-four strong were reduced in numbers. All mouths were carefully charted before and after the year of experiment, and to ensure absolute avoidance of bias I obtained the assistance of Mr. C. M. John, L.D.S., in the charting. The results you see on this chart:—

	Number of boys in group.	Number showing fresh decay.	Percentage, showing fresh decay.	Number of teeth showing fresh decay.	Average number of teeth decayed per boy.
Group A (Control)	20	10	50%	25	1·25
Group B (Ostelin)	16	7	44%	13	·81
Group C (Ostelin and parathyroid)	19	6	32%	8	·42

Leaving out decimals, it shows that for every three teeth attacked by caries among those on the ordinary diet, only two suffered when ostelin was given, and only one when parathyroid was added to the ostelin. I maintain from these figures that, after making due allowance for errors in averaging somewhat small numbers, it would appear that the extra supply of

vitamin D was undoubtedly of value in reducing the incidence of dental decay. I make this assertion so definitely, partly because it is supported by other clinical observation, and also because Mrs. Mellanby's work corroborates it. Sufficient testing of parathyroid extract has not as yet been made to warrant my being dogmatic on its value.

In conclusion may I appeal for a closer co-operation between the medical and dental professions? It should be possible for the dental surgeon on finding rapid caries in the mouth of a patient to send that patient to his or her doctor, in order that the general condition of which I believe the caries to be only a symptom might be put right. It is not the function of the dentist to act as a medical adviser. Also the dentist in his effort to solve the problems of dental disease should have the wholehearted assistance of the bacteriologist, pathologist and radiographer, and also the general practitioner.

To sum up the points I have tried to make in so short a time:

1. No mouth can be considered free from a focus of infection if it contains a dead tooth, a root or unerupted tooth, or an area of bone containing residual sepsis. To ascertain whether any of these is present an X-ray photograph is necessary, but the most easily observed lesions are by no means necessarily the most dangerous.

2. The pregnant mother should be amply supplied with calcium and vitamin D, *i.e.* milk and cod-liver oil.

3. These two articles of diet are even more necessary to the developing child, and may be of value to the adult.

4. The correction of an acidosis or even a tendency towards an acidosis may be of considerable value in preventing dental decay.

Reviews of Books

The Doctor's Job. By A. Lloyd-Williams, M.B., B.S. Pp. vii., 72. London: Student Christian Movement Press. 1930. Price 2s.—A study of medical life and religious character. The author moves in a world which perplexes students and tries the honesty of practitioners; where instincts and passions, fear and care are components of disease, and the healers of the time are fain to find in Christian sources a cue to conquer pain or inspire hope. What, in this sort, a sympathetic understanding may do for one's neighbour is illustrated in a case of broken health repaired, broken vows and broken fortune. The foreword commends the author's helpfulness and sagacity. In handling authorities, in apologetic, in appeal, through various topics of social import—the deep wells of adolescence and maturity, the future of hospital or race, the weaker vessel and her vindication—a right judgment in all things is preserved. We may dissent, though we gather with the sons of the prophets there is death in the pot if accommodation be allowed to those who refuse to increase and multiply. Hold we, too, that, rejected by efficiency tests, there is still that in wine which cheers God and man. These candid pages of the author's *Horae subsecivae* enforce the admonition: "Keep thy heart with all diligence for out of it are the issues of life."

A Shorter Surgery. By R. J. McNeill Love, M.B., M.S., F.R.C.S. Second Edition. Pp. viii., 371. Illustrated. London: H. K. Lewis & Co. Ltd. 1930. Price 16s.—This is essentially a cram book for the senior student. The amount of information crowded into so small a space is astonishing, but the reader must have already a considerable knowledge of surgery before being able to appreciate its value. The section on ulcers and gangrene is too limited to be of any real use and might well have been omitted. In many instances the description of treatment is so brief that it fails to convey any useful information; for instance, Sayre's method of treating a fractured clavicle is the only one described, and

in dealing with certain fractures of the humerus Middeldorpf's triangle is recommended without mention of the serious disadvantage of internal rotation of the distal bone. Treatment is so important a subject that it would seem best omitted altogether if space does not permit of efficient description. In spite of numerous *e.g.'s*, *i.e.'s* and etc.'s, it is a very readable book, with here and there a touch of humour, and in the right hands would be of undoubted use in facilitating revision. In our opinion interleaving with blank pages for the addition of the student's own notes would more than double the value of the book.

Diabetes Mellitus and its Dietic Treatment. By MAJOR B. D. BASU, I.M.S. Fifteenth Edition. Edited by L. M. BASU, M.B. Pp. vi., 160. Allahabad: Dr. L. M. Basu, M.B., Bhuvaneshwari, Allahabad. 1930. Price 2 roupees.—Major B. D. Basu, I.M.S., has been well known in India for many years for his writings on diabetes and on the history of India. The work under review was first published in 1909, and it has now reached the fifteenth edition. Major Basu has for many years insisted on the important part played by intestinal toxæmia in the production of diabetes, and he makes the interesting suggestion that the people of India, being for the most part vegetarians, require more common salt than meat eaters. But, unfortunately, they cannot afford to consume salt in sufficiently large quantities because salt is very heavily taxed. Hitherto we had regarded Gandhi's selection of the salt-tax for his crusade as being political rather than physiological in its origin. Major Basu's remark starts a new train of thought, and one begins to wonder whether the salt-tax is in reality high enough to put a sufficiency of sodium chloride beyond the purchasing power of any section of the Indian public. Major Basu has been helped by his son, Dr. L. M. Basu, in the preparation of this edition, and an admirable short account of insulin and its use has been included. This has added considerably to the value of a book which has achieved a wide popularity amongst Indian doctors.

Percussion of the Chest. By J. B. MACDOUGALL, M.D., F.R.C.P. Pp. viii., 143. Illustrated. London: H. K. Lewis & Co. Ltd. 1929. Price 6s.—This short account of the difficult art of percussion is written with the object of pointing out the

advantages of "light percussion." The author acknowledges his debt to the pianoforte technique of Tobias Matthay, and considers that the successful exponent of percussion requires not only a "good ear" but also a working knowledge of the intricacies of touch comparable to that of a pianoforte player. He insists throughout that percussion depends upon perfection of technique for the best results. It is doubtful, indeed, whether he has not overloaded his book with acoustic problems and discussions on the four basic features of sound, namely, intensity, quality, duration and pitch. Dr. McDougall makes many references to musical instruments of various kinds, such as the human voice, the violin and the pianoforte, but he makes no reference to "tympani" or the "kettle-drums." There is no instrument in the orchestra which throws more light on the difficulties of thoracic percussion, and without knowledge of the intricacies of tuning tympani whilst the orchestra is playing, no medical author should invoke the aid of orchestral illustration to explain the art of diagnostic percussion. The book has an introductory chapter dealing with the history of percussion. The majority of doctors do not derive the same detailed information from percussion as Dr. McDougall does; a perusal of his book will perhaps explain why. To those who have a knowledge of acoustics and music the book will prove most interesting.

The Treatment of Tuberculosis with Umckaloabo. By ADRIEN SECHEHAYE. Pp. xvi., 162. London: B. Fraser & Co. 1930. Price 5s.—Probably many of our readers will remember the notice attracted by the libel actions launched by Mr. Stevens against the British Medical Association, based on their analysis of umckaloabo as published in *Secret Remedies*. And not a few regret that the Association considered it necessary to adopt the defence "Because analysis has failed to reveal any active principle the drug must be inert": an attitude more likely to impress a lay jury than any scientific body. The present book reprints much of the evidence tendered at the trials, as to which the reader is left to form his own opinion. The same capacity for judgment is requisite in dealing with the bulk of the book, which relates the clinical histories of a long series of cases treated with Steven's consumption cure. The author is undoubtedly enthusiastic, but tries hard to give a fair review of the effects of treatment; it is difficult, without undertaking a similar lengthy practical investigation, to criticize or contradict him.

Medico-Legal Problems. By LORD RIDDELL. Pp. viii., 100. London: H. K. Lewis & Co. Ltd. 1929. Price 5s.— This book contains four papers which have been published at different times in the *Transactions of the Medico-Legal Society.* The first deals with the legal responsibility of the surgeon in particular reference to operations for the sterilization of women, in the second he discusses the ethical legal and medical aspects of procuring abortions, whilst the fourth paper considers the sterilization of the unfit. The third paper is entitled the "Law and Ethics of Medical Confidences," and is much the most varied and interesting of the four. Lord Riddell's attitude to the contention that a doctor should not be forced to reveal professional confidences in the witness reveals an odd mentality. "We must recognize," he writes, "that the rules regarding them (*i.e.* medical confidences) exist for the welfare of the community and not for the aggrandisement or convenience of a particular class." It is a new idea that a doctor hesitates to divulge medical confidences for the aggrandisement or convenience of a particular class. Curiously enough, Lord Riddell recognizes that the privilege accorded to communications between solicitor and client is that of the client and not of the solicitor. If medical confidences were regarded as privileged communications of the patient it is difficult to see how the doctors would be aggrandised any more than solicitors are under the present rules. It is most interesting to read these papers, for, as Lord Riddell says, he is not speaking as a practising lawyer or a doctor, but as a member of the public.

The Cosmetic Treatment of Skin Complaints. By Professor E. KROMAYER. Second Edition. Pp. viii., 110. Illustrated. London: Oxford University Press. 1930. Price 6s. 6d.— This is the second edition of a small book dealing with the cosmetic side of dermatology. Professor Kromayer is the inventor of the well-known Kromayer Quartz lamp. This work does not pretend to be an exhaustive treatise on the dermatoses named, but is full of practical suggestions as to their treatment, especially by various physical means, such as skin punches, rasps, drills, and, of course, X-rays, radium and the Kromayer lamp. With the experience of thirty years to prove the advantage of the methods suggested, the author can write with authority, and his advice on many points is sound. The book serves its purpose well, as introducing alternative methods of removal of blemishes which may cause so much mental distress.

The Morphine Habit and its Painless Treatment. By G. LAUGHTON SCOTT, M.R.C.S. Pp. viii., 94. London: H. K. Lewis & Co. Ltd. 1930. Price 5s.—In this monograph the author explains his method of treating the morphia habit by gradual reduction of the dose, together with the administration of belladonna and hyoscine, and with large doses of luminal to ensure sleep. The dose of belladonna and hyoscine is varied according to the patient's tolerance, and every effort is made not to disturb the mental equilibrium. It is claimed that this method much reduces the discomfort and shock of withdrawal, and the average length of the cure is reduced to about twenty-eight days. It is probable that the minute attention to detail, and the constant personal supervision entailed by Dr. Scott's regime, contribute to a very large degree to the success of this method of treatment.

Radium and Cancer (Curietherapy). By D. C. L. FITZWILLIAMS, C.M.G., F.R.C.S. Pp. viii., 172. Illustrated. London: H. K. Lewis & Co. Ltd. 1930. Price 12s. 6d.—Books on this subject are pouring out from the press just now, all saying much the same thing, and representing much the same phase of experience. We have reviewed several in the pages of this *Journal*. Every surgeon who proposes to use radium—and who, at the present time, does not ?—should make himself acquainted with the contents of one of them, but nothing can take the place of personal experience. The volume before us is concise (169 pages), practical and adequately illustrated. It contains an interesting paragraph or two on the commercial sources and fluctuating prices of radium. We note that the writer, who is surgeon to the Mount Vernon Cancer Research Hospital, relies on block dissection rather than radium for malignant glands of the neck, and does not mention any need for lead screens to protect the jaws or palate during curietherapy of the tongue. He expects, and justly, that the knowledge that radium is available, instead of a mutilating operation, will give courage to some poor creatures, who up till now have kept the knowledge that they have a cancer of the breast to themselves for years, to come up earlier for treatment. Fitzwilliams treats the breast with radium, but clears out the axilla surgically. The glands in Hodgkin's disease rapidly disappear, but recurrence is the rule. A good account of the two schools of opinion concerning the treatment

of cancer of the uterus is contributed by Dr. Malcolm Donaldson. The book suffers much from bad proof-reading. We have never reviewed a book with so many mistakes in spelling and misprints—two in consecutive lines on page 2. We read of metastases being "sewn" instead of "sown." The misuse of commas is most irritating; they are inserted copiously in the place of semi-colons, brackets and even hyphens; one even creeps in to divide asunder the honourable name of Lazarus-Barlow! Some sentences lack a verb. However, this must be judged as a text-book of surgery, not as an essay in English.

Radium in General Practice. By A. JAMES LARKIN, B.Sc., M.D. Pp. 304. Illustrated. New York: Paul B. Hœber. 1929. Price $6.00.—This book, belying the title, is scarcely a book of reference for the general practitioner, though it must prove of value to the enthusiastic radio-therapeutist. After all, the practitioner wants to know just what radium is offering for a disease, other than the already well-known methods of treatment. In this particular the information is partly forthcoming, though no references are made as to the relative values of radium and other therapies. Naturally, the details of the physics of the subject are given little space in such a book. At the same time a great bulk of the volume is taken up with details of the actual application of radium in different forms of disease. Even now such details are ever changing, and they cannot be of much value to the practitioner. The treatment of disease, if it is to be rational, must be based on a clear appreciation of pathology, and in this book the outlines of the pathology of each subject are clearly given. (One can only wish that radiotherapy was always based on sound pathological lines.) The reading of the book is made tiresome by the endless repetition of two sentences referring the reader to a few pages in the introduction. No particular order is observed in the volume—it is difficult to see why carcinoma of the œsophagus is included in the section on "General Diseases." There is, as is usual in American books, a very useful and extensive bibliography, and while we must recognize that the bulk of radium work has been done outside this country, it is unfortunate that the references are mainly to American workers. Both paper and print are excellent. There are hardly any diagrams, and the few there are do not add materially to what is rather an expensive book.

The Dramatic in Surgery. By G. GORDON TAYLOR, O.B.E., M.S. Pp. 88. Illustrated. Bristol: John Wright & Sons Ltd. 1930. Price 12s. 6d.—This is a book of absorbing interest—a record of great achievements in the face of adverse circumstances. It should find its place on the bookshelf of all practising surgeons if only to serve as a reminder that their art is not a mere routine, but a profession which may at any moment call for the highest degree of courage, judgment and skill. Mr. Gordon Taylor, looking back over thirty years of practice, and that of his surgical confrères the world over, has collected a miscellaneous series of surgical instances of the dramatic, which, apart from anecdotal interest, have a very real value to the surgeon.

Physical Signs in Clinical Surgery. By HAMILTON BAILEY, F.R.C.S. Second Edition. Pp. xviii., 268. Illustrated. Bristol: John Wright & Son Ltd. 1930. Price 21s.—Students who know their theoretical work fairly well are often, and rightly, "plucked" in their examinations because they do not know how to examine a patient. They will avoid this fate if they read and put into practice the contents of this excellent book. If they did no more than glance through the numerous illustrations they would learn much. We are not at all surprised that many a general practitioner has also found it very useful. A few of the clinical signs described are of dubious value of course, but it is better to know too many than too few, and any help that enables the doctor to make an accurate diagnosis by examining the patient, instead of trusting all to the skiagraphist and the pathologist, is to be welcomed.

Nasal Catarrh. By W. STUART LOW, F.R.C.S. Pp. x., 84. Illustrated. London: H. K. Lewis & Co. Ltd. 1930. Price 5s.—In this little book the author sets out to maintain the possibility and the desirability of curing all forms of nasal catarrh. He attempts nothing startling—indeed, one might say nothing that has not been for long the ordinary teaching of the text-books. His work is particularly notable for the stress laid on conservation of tissue and especially mucous membrane. Only bland applications are permissible or indeed useful. In common with most rhinologists he finds little advantage in vaccines. A book that the student or young graduate may find well worth reading.

Anæsthesia and Anæsthetics. By F. S. ROOD, M.B., B.S., and H. N. WEBBER, M.A., B.Ch. Pp. xi., 292. Illustrated. London: Cassell & Co. Ltd. 1930. Price 14s.—This book is based almost entirely upon the clinical experience of the authors and their hospital colleagues, and space has not been sacrificed to dissertations upon history or theory. In perusing its pages one's attention is early held by the attractive account of the respiratory phenomena occurring during anæsthesia, and of the various reflexes involved which may be the cause of so much embarrassment on the part of the administrator. General emergencies and complications are described with clearness that should be a great help to the student in recognizing and treating them. The clinical nature of the work is well maintained, and in the chapter entitled "A Typical Ether Case," with its picture of the events associated with induction, maintenance and recovery, though some readers will probably feel that an excessive saturation with ether has been suggested in the remark that for almost all operations abolition of the pupil light reflex is necessary. It is satisfactory to find that considerable attention has been paid to the apparatus for administering nitrous oxide, because a knowledge of the mechanism seems essential to success, but we venture to suggest that an error has crept into the illustration of Hewitt's valve in the re-breathing position. The subject of local and regional anæsthesia is clearly described with a welcome amount of technical detail, but under spinal analgesia it is noticeable that novocain is not mentioned. The book is agreeably written, well printed and adequately illustrated.

The Extra Pharmacopœia. Vol. II. By MARTINDALE and WESTCOTT. Nineteenth Edition. Pp. xxxviii., 759. London: H. K. Lewis & Co. Ltd. 1929. Price 22s. 6d.—Volume II. of *The Extra Pharmacopœia* is as usual a mine of information, largely chemical and analytical. The structure of the atom, foodstuffs, including advances in baking bread, vitamins, the essential oils, opotherapy, analysis organic and inorganic, the theory of drug synthesis, sterilization, antiseptic powers of disinfectants, ionization, radiology and radium therapy, balneotherapy, bacteriology and patent medicines are the titles of the larger sections of the book, and indicate its protean interest. Throughout facts, tables of facts, reports, references, analyses, supply the bulk of the matter, and produce a work of reference invaluable and unique.

The Snake Park. By F. W. FITZSIMONS (Director of Port Elizabeth Museum). Also **Snake Venoms: Their Therapeutic Uses and Possibilities.** By F. W. FITZSIMONS.—Probably many readers are familiar with the name of Mr. FitzSimons, the authority on the poisonous snakes of South Africa, and will welcome this account of the interesting work done at the snake park of Port Elizabeth. The prime object of the researches conducted at the park was to discover an anti-venom serum to replace the many useless "cures" sold for the treatment of snake bite; and investigations were further extended to the possible therapeutic value of the venom itself, and owing to certain reported instances in which subjects of epilepsy, who had survived snake bite, were found subsequently to be wholly or partially free from seizures, a large number of epileptics were treated with venom and gave remarkable results. For therapeutic purposes the venom is subjected to processes of separation and blending. The author claims that protein shock has little or nothing to do with the action of the resulting product which is known as "Venene." The brochure entitled *Snake Venoms* is a reprint of a paper read by Mr. FitzSimons before the British and South African Association at Cape Town, in July, 1929.

The Medical Annual, 1930. Edited by CAREY F. COOMBS, F.R.C.P., and A. RENDLE SHORT, F.R.C.S. Forty-eighth Edition. Pp. c., 652, 167. Illustrated. Bristol: J. Wright & Sons Ltd. 1930. Price 20s.—We heartily welcome again this standard work. All of us feel the difficulty of keeping abreast with the many recent advances in medical knowledge, and there is no better help in this than the study of these *Annuals*, where most recent discoveries are discussed and given in abstract with references for further research. Although this work has nearly attained its fiftieth year, growth still takes place in it. It now contains over 900 pages, 700 of which are taken up by the dictionary of practical medicine. This volume, by the way, records the death of the founder of the *Annual*, Dr. Percy R. Wilde, who continued to contribute till his decease last year. A few days before his death he wrote of the 1929 volume: "I think it is quite the best." The surgical articles this year are particularly interesting, *e.g.* Leriche's account of periarterial sympathectomy and the relief of pain given by it, Hey Groves on fractures, the cure of sundry cases of congenital jaundice, the tannic acid treatment of burns and the use of diathermy in cerebral tumours. One is glad

to see Hutchison criticizing the fanatics on intestinal toxæmia, and pointing out that the bowel contents are after all outside the tissues, and absorption from them is so rigidly controlled that poisons like tetanus and diphtheria in them are kept out of the tissues more perfectly than when smeared on the cracked skin of the patient's hand. We must point out the value of the lists given here of current periodicals, of the books of the year, and of new preparations and inventions, as well as the directories of sanatoria, homes and medical trades.

Editorial Notes

Death of Dr. Bridges.

Dr. Bridges's death has robbed English letters of a singular personality. His appointment as Poet Laureate in 1913 came as a surprise. His poetry was only known to a few, and his other contributions to literature were still less widely known. Now at the end of a long life his energies, his inspirations and the music of his tongue are more fully acknowledged. He was a Poet Laureate worthy to rank with the few holders of that office who have deserved the laurel crown.

Our English speech will be the richer as well as the purer for Bridges's efforts. His education was unquestionably orthodox and stereotyped; Eton and Oxford might be expected to produce a versifier who would cling to the classical models—and Robert Bridges knew the classical models and used them well. Judged from current journalism Eton and Oxford might only seem likely to furnish drawling affectation in their poets. But somehow through all of Bridges poetry there runs a music that is the rarest of all the qualities in English Poetry.

England has had readable poets enough and to spare, but the singable ones can scarcely be found. Robert Bridges has a marvellous sense of the music in words, but then he was a musician as well as a poet. This rare combination made him able to fashion such a lyric as "The Stranger" (Whither oh

splendid ship thy white sails spreading). Not even his medical education can take credit for imparting this quality to his verses. Yet he may have owed something to an earlier doctor-poet. The link between him and Thomas Campion is unmistakeable. Of all doctors turned poets none else excelled in both callings.

Keats, Goldsmith and Cowley, high as they stand as poets, were of no medical account; Schiller practised for a time as an Army Surgeon, and abandoned medicine for letters as soon as he was able. Of the rest Garth, Akenside and Co.—they barely rank with the minimal poets.

Bridges practised medicine long enough to prove his worth; he was a Radcliffe travelling fellow, then Casualty Physician at St. Bartholomew's, Assistant Physician at Great Ormond Street, and Physician at the Great Northern Hospital. When forty years old he retired from medicine as he had long planned to do, and his second life in letters began.

Campion, the Elizabethan, who in his *Two books of Airs* tells the reader that he chiefly aimed to couple his words and notes lovingly together, practised as a physician, and when in 1615, Sir Thomas Monson was confined to the Tower in connection with the murder of Sir Thomas Overbury, Campion acted as his medical attendant there, so that he was actively engaged in medicine until within five years of his death.

The resemblance between Campion and Bridges extends further than to their medical training and poetic tastes. Like Bridges, Campion had explored the art of prosody and published in 1602 his observations on the art of English poesy; either Campion or Bridges might have written of our English

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syllables, "the sound of them in a verse is to be valued and not their letters." Surely Bridges echoed some of the music of Campion's line, "Could I enchant, and that it lawful were," when he wrote in his "Elegy," "Could I forget then were the fight not hard."

If English medicine should claim two representative poets who were likewise doctors, the names of Campion and Bridges must stand alone.

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The New Hospital at Winford.

ON May 31st, the new Orthopædic Hospital at Winford, formed by amalgamation of the Bristol Orthopædic Hospital with the Bristol Crippled Children's Society, was opened by Prince George. Fortunately the rain held off until the ceremony was over, and the large company of guests had an admirable opportunity of seeing for themselves the kind of hospital that is being developed on the new site. (It will be remembered that less than two years ago the foundation stone was laid by the Duke and Duchess of York.) The nature of the work that is contemplated was explained by Miss F. M. Townsend, J.P., Chairman of the Hospital, and also by its President, the Lord Mayor of Bristol. The buildings were described by the architect, Sir George Oatley. These consist of one ward block holding fifty-six beds, to which it is hoped to add at least one other block as soon as funds permit; a treatment block which includes an operating theatre, also plaster, light, X-ray, and exercise rooms; an administrative block housing the nursing and domestic staff and the resident medical officer; an engine house for generating the power which heats and lights the

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hospital; and a laundry. The hospital has its own water supply. The site was chosen with care as the best available within a radius of six miles from the centre of Bristol, and sixty-seven acres were purchased so as to afford room for extensions to the city hospitals, if and when these are desired. There is still a debt of about £18,000 on these buildings, which it is hoped will be met within the remainder of the current year.

The Medical and Surgical Staff of the Hospital is as follows:—

Honorary Consulting Staff.—*Physicians:* F. J. Poynton, M.D., F.R.C.P., Carey F. Coombs, M.D., F.R.C.P., R. C. Clarke, M.B., M.R.C.P. *Surgeons:* Sir Robert Jones, Bart., K.B.E., C.B., F.R.C.S., E. W. Hey Groves, M.S., F.R.C.S., G. R. Girdlestone, B.Ch., F.R.C.S.

Honorary Staff.—*Physicians:* C. E. K. Herapath, M.D., C. B. Perry, M.D., M.R.C.P. *Surgeon:* H. Chitty, M.S., F.R.C.S., *Dental Surgeon:* Clifford Wing, L.D.S., R.C.S. *Anæsthetist:* A. L. Flemming, M.R.C.S., L.R.C.P. *Radiologist:* T. B. Wansbrough, M.B., Ch.B., D.M.R.E. *Pathologist:* A. L. Taylor, M.D. *Resident Medical Officer:* E. M. Redman, M.B., Ch.B.

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The Liverpool Medico-Chirurgical Journal.

FOR some years—to be precise, from the end of 1916 to the middle of last year—the publication of the *Liverpool Medico-Chirurgical Journal* was suspended. That it has been revived is all to the good. It was always one of the best of the British Journals, and the members that mark its renewed activity are fully up to the high standard that we learnt to expect of

it. The first article is one on William Harvey, appropriately written by Professor John Hay, whose services to his own medical school are no less conspicuous than those which he has rendered to the advancement of cardiology. This is followed by a number of interesting articles, and the second issue—the journal appears twice a year—is equally good. We congratulate the Editors, Drs. R. W. MacKenna and Robert Coope, on their achievement, and wish them continued success.

Obituary.

THOMAS MORAVIAN CARTER, O.B.E., M.D.

It is with great regret that we record the death on the 21st February, 1930, at his residence, 19 Westfield Park, Clifton, of T. M. Carter, O.B.E., T.D., M.D., in his sixty-second year.

Dr. Carter was educated at the Bristol Grammar School and University College, Bristol, where he won the Committees' Gold Medal in 1891. He qualified as M.R.C.S., L.R.C.P. in the same year, and held the post of House Physician, and later House Surgeon, at the Bristol General Hospital. He subsequently took up practice in Bristol, and continued here until the outbreak of war in 1914. During part of that time (1904–1910) he was a member of the City Council. He served for many years in the Volunteer and Territorial Forces, and in 1914 was Senior Major of the 6th Gloucesters. When the 2nd Line Battalion was formed he was given command of it, with the rank of Lieut.-Colonel, and proceeded to France in 1916 with the 61st Division. Later on in 1916 he transferred to the R.A.M.C., and saw service in Egypt and the Mediterranean. Before the end of the war he returned to France, and at the Armistice was in command of No. 3 Convalescent Depôt at Boulogne. His success in this capacity made No. 3 Convalescent Depôt one of the pattern depôts, and for this service he was made O.B.E. For some years he was Chairman of the Clifton Industrial School.

Dr. Carter had been West of England representative on the National Health Insurance Committee before the war, and in 1920 was appointed a regional Medical Officer in the Midlands. He returned to Bristol in 1925, to take up a similar appointment here for the South-Western District, and this he held at the time of his death.

Dr. Carter was keenly interested in Freemasonry, and had been Master of the St. Vincent (1404) and Robert Thorne (3663) Lodges in Bristol. He was also an active member of the Quatuor Coronati Lodge (2076).

THE LATE COL. T. M. CARTER, O.B.E.

He was a member of the British Medical Association, Bristol Medico-Chirurgical Society, and the Bristol Shakespeare Society, and was Hon. Secretary of the Bristol and Gloucestershire Archæological Society.

Dr. Carter married in March, 1895, Ada Clara, youngest daughter of the late Mr. H. W. Just, Master of Modern Languages at the Bristol Grammar School, and leaves a son, Major E. T. Graham Carter, R.E., and three daughters.

We offer our deepest sympathy to his widow and children.

Meetings of Societies.

Bristol Medico-Chirurgical Society.

The sixth meeting of the session was held at the University on Wednesday, 12th March, 1930, the President in the chair.

MR. S. V. STOCK then opened a discussion on "**The Evaluation and Treatment of the Bad Operation Risk.**"

DR. R. C. CLARKE then read a paper on "**The Atonic Child.**"

The seventh meeting of the session was held at the University on Wednesday, 9th April, 1930, the President in the chair.

MR. A. D. FRASER gave a paper on "**The Cause of Acute Rheumatic Fever and the Relationship of the Organisms to Chronic Rheumatism and Cancer.**"

The last meeting of the session was held at the University on Wednesday, 14th May, 1930, the President in the chair.

DR. J. V. BLACHFORD gave a paper on "**Epilepsy and its Relation to Mental Diseases.**"

The Medical Library of the University of Bristol,

WITH WHICH IS INCORPORATED

The Library of the Bristol Medico-Chirurgical Society.

The following donations have been received since the publication of the List in March, 1930.

June, 1930.

Hamilton Bailey, Esq., F.R.C.S. (1)	2 volumes
Michell Clarke Memorial Fund (2)	1 volume
Henry Phipps Institute (3)	1 ,,
John Purcell Research Memorial (4)	1 ,,
Rockefeller Foundation (5)	2 volumes

Unbound periodicals have also been received from Professor E. W. Hey Groves.

THE ONE HUNDRED AND THIRTY-SECOND LIST OF BOOKS.

The figures in round brackets refer to the figures after the names of the donors. The books to which no such figures are attached have either been bought from the Library Fund or received through the *Journal*.

Bacalogli, C.	*Clinici Medicale*		1929
Basu, B. D.	*Diabetes Mellitus and its Dietic Treatment.* 15th Ed.		1930
Fowler, Sir J. K. ..	*The Sthenics*		1930
Gould, G. M.	*Pocket Medical Dictionary* 9th Ed. revised		1928
Hamilton Bailey ..	*Branchial Cysts*	(1)	1929
Hamilton Bailey ..	*Physical Signs in Clinical Surgery* 2nd Ed.	(1)	1930
Kittell, P. B.	*Hæmodynamics*		1929
Lusk, G.	*Elements of the Science of Nutrition* 4th Ed.	(2)	1928
McDougall, J. B. ..	*Percussion of the Chest*		1929
MacNevin, M. G., and Vaughan, H. S.	*Mouth Infections.* Vol. I.	(4)	1930
Oliver, W.	*Practical Essay on Fevers*		1704
Riddell, Lord	*Medico-Legal Problems*		1929
Rood, F. S., and Webber, H. N.	*Anæsthesia and Anæsthetics*		1930

TRANSACTIONS, REPORTS, JOURNALS, ETC.

Journal of Industrial Hygiene. Vol. 8 onwards .. .. 1926 onwards
Medical Annual, 1930 1929
Henry Phipps Institute, 21st Report of .. .. (3) 1929
Methods and Problems of Medical Education. 16th Series .. (5) 1930
Quarterly Cumulative Index Medicus. Vol. 6 (July–Dec., 1929) .. 1929
Reprints from Methods and Problems of Medical Education on Anatomy and Related Subjects .. .. (5) 1930
Surgical Clinics of North America. April, 1930 1930
Transactions of the American Laryngological Association Vol. 51 and Index 1–50 1929

Local Medical Notes.

Long Fox Memorial Lecture.—The lecturer this year will be Professor J. A. Nixon. The subject and date will be announced later.

EXAMINATION RESULTS.

University of Bristol.—Students of the University have recently passed the following examinations:—

M.D.—J. F. O. Bodman, T. F. R. Hewer.

CH.M.—*Pass:* R. V. Cooke.

M.B., CH.B.—*Second Examination* (*Part II.*). *Pass:* A. V. House, A. D. Jones, M. G. Thomas, S. P. N. Williams.

M.B., CH.B.—*Final Examination* (*Part I.*). *Pass* (*in Forensic Medicine and Toxicology*): K. P. Beaubrun, L. C. Holland. *In Materia Medica, Pharmacology and Therapeutics and Pathology* (*Completing Examination*). *Pass:* A. J. B. Miall. *In Organic Chemistry* (*Completing Examination*): H. W. Pidgeon.

M.B., CH.B.—*Final Examination* (*Part II.*). *Pass:* With Second Class Honours, J. F. Coates (with distinction in Medicine and Obstetrics), G. F. Langley (with distinction in Medicine and Public Health). *Pass:* H. F. G. Corfield, R. D. Jones, R. A. Lattey, R. P. Lucas, H. M. Strover. *In Group I.* (*Completing Examination*): R. M. Norman.

D.P.H.—*Part II.* (*Completing Examination*). *Pass:* W. W. S. Sharpe.

B.D.S.—*Third Examination. Pass (in Dental Materia Medica, Completing Examination):* M. J. Ryan.

B.D.S.—*Final Examination. Pass:* Muriel E. S. Cosh, W. Forsyth.

L.D.S.—*Preliminary Science Examination. Pass:* J. G. Clancy, R. J. Lee.

L.D.S.—*First Professional Examination. Pass (in Physiology and Histology and Anatomy only):* I. R. R. Eskell.

L.D.S.—*Second Professional Examination. Pass (in Dental Mechanics and Dental Metallurgy only):* Helena C. L. Blinkworth, W. V. Whiteford. *In Materia Medica only:* R. E. W. Smith.

L.D.S.—*Final Professional Examination. Pass:* A. N. Moon, T. A. Satchwell, C. G. Westlake, I. W. Williams.

CONJOINT.—M.R.C.S., L.R.C.P.—*In Anatomy:* R. H. Moodie. *In Pharmacology and Materia Medica:* Annie M. B. Walker, R. G. Wilbond. *In Pathology:* Anne E. Williams-James. *In Medicine:* Margaret E. Williams, Ida B. Saxby, L. H. Wharton,* R. V. C. Richards, J. F. Coates,* L. H. Griffiths. *In Surgery:* H. M. Strover, J. F. Coates,* A. G. Flemming, C. H. Pauli,* K. I. Nicholls, W. L. Sleight. *In Midwifery:* J. F. Coates.*

L.D.S., R.C.S.—*First Professional Examination. Part I. (Dental Mechanics):* J. S. Cochrane, A. M. Watson. *Part II. (Dental Metallurgy):* R. H. Green, N. G. Harrison, S. A. McCandlish, P. J. F. Shepherd, H. W. South. *Part IIIa. (Anatomy and Physiology):* J. S. Cochrane. *Part IIIb. (Dental Anatomy and Physiology):* F. S. Bromley, Margaret D. Hooper, W. N. Trays.

L.D.S., R.C.S.—*Final Examination. Part I.:* G. H. Dakers, T. A. A. Eaves, W. Forsyth, J. K. Noot. *Part II.:* Q. A. Davies, F. G. Lilley, J. P. Price, J. D. Sellers, J. H. White.

* Qualified.